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Marine Hospital Service.

ANNUAL REPORT

OF THE



SUPERVISING SURGEON-GENERAL

OF THE

MARINE HOSPITAL SERVICE OF THE UNITED STATES

FOR THE

FISCAL YEAR 1891.



WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1891.



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TREASURY DEPARTMENT.

Document No. 1466.

*Marine-Hospital Service.*













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OPERATIONS  
OF THE  
UNITED STATES MARINE HOSPITAL SERVICE.  
1891.

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# REPORT.

TREASURY DEPARTMENT,  
U. S. MARINE HOSPITAL SERVICE,  
*Washington, D. C., October 10, 1891.*

SIR: I have the honor to make the following report of the Marine Hospital Service of the United States for the fiscal year ended June 30, 1891, being the ninety-second year of the service and its eighteenth annual report, together with a statement of pertinent facts and information to the present date.

## MEDICAL CORPS.

On June 1, 1891, Surgeon-General John B. Hamilton, by his own request, was appointed by the President surgeon in the Marine Hospital Service, after resigning his commission as Surgeon-General.

The following circulars are self-explanatory:

[Circular.]

TREASURY DEPARTMENT,  
OFFICE OF THE SUPERVISING SURGEON-GENERAL  
U. S. MARINE HOSPITAL SERVICE,  
*Washington, June 1, 1891.*

*To the medical officers and acting assistant surgeons of the Marine Hospital Service:*

I this day relinquish the supervision of the Marine Hospital Service, which I have exercised since April 3, 1879.

During the twelve years now past the service has rendered notable services to the general public, made many advances, and has gained many friends. These results are due principally to the self-sacrificing spirit animating all your official acts, your unfailing devotion to your public duties, and the cordial and united support freely given me as Supervising Surgeon-General.

The continuance of the same high state of efficiency will, I have no doubt, make the future of the service even more gratifying to its friends than its past. With thanks for your loyal and faithful support,

I am, faithfully, yours,

JOHN B. HAMILTON.

TREASURY DEPARTMENT,  
OFFICE OF THE SUPERVISING SURGEON-GENERAL  
U. S. MARINE HOSPITAL SERVICE,  
*Washington, June 1, 1891.*

*To the medical officers and acting assistant surgeons of the U. S. Marine Hospital Service:*

By virtue of promotion by the President, I have this day assumed supervision of the service and its administration, under the direction of the Secretary of the Treasury, in conformity with the laws and regulations.

WALTER WYMAN,  
*Supervising Surgeon-General Marine Hospital Service.*



One death has occurred during the year. Assistant Surgeon John F. Groenevelt contracted yellow fever in the performance of his duty at the United States quarantine station on Chandeleur Island, in the Gulf of Mexico, and died June 29, 1891. Dr. Groenevelt was an acclimated physician of the South when he came into the service, and during his examination informed the board of examiners that he had had yellow fever. A copy of the order announcing his death is appended. (See page 90.)

During the fiscal year 1891 two boards have been convened for the examination of applicants for admission into the medical corps, the number of applicants appearing before the boards being 17, of which number but 2 were successful. These 2, together with 2 candidates successful in the previous year, have been appointed assistant surgeons in the service. On account of the number of applications, and because of the necessity of maintaining the professional excellence of the medical corps, the standard to be attained on examination for admission has been placed at 80 per cent, while the physical examination is also exacting.

Four assistant physicians have been promoted, after examination, to the grade of passed assistant surgeon during the year.

With the changes above noted the medical corps of the service now consists of the Supervising Surgeon-General, 15 surgeons, 20 passed assistant surgeons, 18 assistant surgeons, and 79 acting assistant surgeons. The force of medical officers in the Bureau at Washington, as assistants to the Surgeon-General, consists of 1 surgeon in charge of the quarantine division, 1 surgeon in charge of the purveying division, 1 passed assistant surgeon as acting chief clerk and Bureau executive, and 1 passed assistant surgeon in charge of the laboratory of the service.

#### REMOVAL OF THE BUREAU.

Purchase having been made by the Government of the stone building known as the "Butler Mansion," No. 3 B street SE., south of and facing the Capitol, by direction, the Bureau was moved, June 11, 1891, from its old quarters on F street to the more commodious quarters thus provided. At the same time the bacteriological laboratory was transferred from New York and established on the fourth floor of the Bureau building.

#### MARINE HOSPITALS, AND RELIEF FURNISHED.

During the year ended June 30, 1891, the total number of patients treated by the service was 52,992, of which number 15,349 were treated in the hospitals and 37,643 in the dispensaries connected therewith. There are eighteen United States marine hospitals, exclusive of the quarantine hospitals owned and operated as such by this service; and one hospital, at New York, which is leased and operated entirely by



this service. A detailed statement with regard to each hospital is appended, but in general it may be said that they are in good condition. With regard to the hospital for the port of New York, I would renew the recommendations made repeatedly by my predecessor, that the Government purchase the hospital, which is now occupied under lease.

Attention is also called to the necessity for a hospital at Sitka, for which an estimate of \$25,000 has been presented to Congress.

Also to the need of a hospital at Buffalo, N. Y., where, on account of the increased commerce of the lakes, there has been a corresponding increase in the number of applications for relief.

Owing to its rapid growth and the commercial importance of Tampa, Fla., the President, by an executive order dated January 19, 1891, set apart 5 acres of the abandoned Fort Brooke military reservation as a site for a marine hospital. An estimate has been prepared for fencing in this reservation, and when the needs of the port demand it an appropriation will be requested for the erection of a hospital. With regard to the hospital at Chelsea, Mass., the land required for a new roadway leading thereto has been donated to the Treasury Department, being a part of the land belonging to the United States Naval Hospital reservation, which is adjacent. By letter of August 7, 1891, the Acting Secretary of the Navy, in accordance with a favorable report by the Chief of the Bureau of Medicine and Surgery of the Navy Department, and with the approval of the President, made the formal transfer to this Department, thus providing for the marine hospital a much shorter and easier means of ingress. An estimate has been prepared for the necessary appropriation for the construction of the roadway.

At San Francisco contracts have been approved for the construction of a new ward, to cost \$10,000, and the work is about to be begun.

The new marine hospital at Evansville has been completed, and will be occupied during the coming winter.

Owing to the number of incurable patients that are found in all marine hospitals, it is desirable, as a means of relief, to establish at Washington a hospital for incurables.

#### DONATION.

Acknowledgment is due to the Concord Seaman's Friend Society, of Concord, N. H., for the donation, under date of April 24, 1891, of a library of seventy-five volumes for the use of the patients in the Chelsea Marine Hospital.

#### PURVEYING DIVISION.

The work of this division embraces the purchase and issue of medical supplies, surgical instruments and appliances, medical books and journals, hospital stores, bedding and clothing, and hospital sundries. Re-



quisitions for hospital furniture and miscellaneous articles, contracts and bills for subsistence supplies from the various hospitals and relief stations are examined and passed upon. Attached to the purveying division is the pharmaceutical laboratory, where are manufactured many of the medicinal preparations used in the service, and where chemical tests of medicines, inks, laundry soaps, etc., purchased for the service, are made.

Three hundred and ninety-three requisitions for medical and other supplies have been filled to meet the wants of nineteen United States marine hospitals and forty-three other relief stations of the service.

Eight national quarantine stations, six United States revenue cutters, the Emergency Hospital at the barge office, and the Insane Hospital at Ellis Island New York Harbor, under the control of the Immigration Service, have received their medical supplies through this division.

The following is a summary of the cost of the various supplies purchased for issue during the year:

Medical supplies.....	\$7, 783. 55
Hospital stores.....	7, 922. 84
Hospital sundries.....	6, 898. 18
Surgical instruments and appliances.....	2, 017. 68
Bedding and clothing.....	5, 673. 57
Medical books and journals .....	520. 75

#### AID TO OTHER BRANCHES OF THE GOVERNMENT SERVICE.

This service is called upon to render professional aid to a number of other services, which it can readily do by reason of its large number of medical officers stationed at the principal maritime cities throughout the United States.

First may be mentioned:

*Aid to the Life-Saving Service.*—During the fiscal year ended June 30, 1891, there were 1,133 keepers and surfmen of the Life-Saving Service examined physically by the officers of the Marine Hospital Service, of which number 59 were rejected. In addition to the above, all of the claims for pensions made by the keepers and crews of the Life-Saving Service under the act of May 4, 1882, involving a survey of their physical condition and the testimony connected therewith, have been examined and passed upon in the office of the Surgeon-General.

2. *Aid to the Inspection Service of Steamboats.*—During the fiscal year ended June 30, 1891, by request of the United States local inspectors of steam vessels, 1,182 pilots were examined with regard to their sight, more particularly as to their ability to distinguish colors, of which number 29 were rejected on account of color-blindness.

3. *Aid to the Revenue Marine Service.*—During the fiscal year 243 seamen of the Revenue Marine Service were examined physically as a prerequisite to their enlistment, of which number 38 were rejected.



By request, detail of a medical officer of the Marine Hospital Service was made April 14, 1891, for duty on the revenue-cutter *Rush* during her annual cruise to the Arctic.

Aid given to the Immigration Service will be mentioned further on; and, finally, the benefits of the service have been tendered to the seamen of the Light-House and Coast Survey vessels, and vessels of the Engineer Corps and to the enlisted men of the Signal Corps of the Army, with a proviso for reimbursement for actual expenses.

It is also proper here to make acknowledgment of services rendered by the Revenue Marine Service in transporting the inspectors of this service and rendering other aid; by the Light-House Board, in conveying and placing buoys and anchors at the Gulf Quarantine; by the Coast Survey, in furnishing valuable charts required in the location of quarantine piers, and by the Steamboat Inspection Service, whose inspectors are supervising the construction of the quarantine steamer at San Francisco.

#### PUBLIC HEALTH DIVISION.

*Sanitary history of the fiscal year.*—No general epidemic has prevailed in the United States during the year, though a few local epidemics have been reported. In January an outbreak of scarlet fever occurred at Cairo, Ill., and diphtheria was widely prevalent in the same month throughout the State of Iowa. At Albany, Cohoes, and Schenectady, in the State of New York, typhoid fever was reported as epidemic in April. During the months of February, March, and April gripe recurred in an epidemic form at Charleston, S. C., and Vineyard Haven, Mass. It was also reported as generally prevalent in the States of New York and California. At Charleston the disease was mild in type. At Vineyard Haven it was more severe and affected fully 40 per cent of the community. In California 363 cases, and 13 deaths from gripe were reported. In the State of New York the mortality from gripe was 1,000 for the month of March and from 4,500 to 5,000 for April. The latter number is in excess of that for the same month in the previous year.

*Cholera.*—The most widely diffused epidemic of the year has been that of cholera, which has prevailed extensively in certain localities in Asia Minor, principally in the vilayet of Aleppo and in the Hedjaz. A fact worthy of note in regard to this epidemic is that in Aleppo it was a recrudescence of the epidemic of last year, the disease having remained latent during the winter months, while in the Hedjaz it was undoubtedly an importation, by way of the sea, from India. That cholera may be apparently extinguished to break out, after hibernation, with the return of the warm season, is a fact established by the history of past epidemics. The connection of a cholera outbreak with the annual pilgrimage to the Hedjaz is also well ascertained. In the present year the Damascus caravan left for Mecca a month and a half before the

appearance of cholera at Aleppo. Hence a connection can not be traced between the outbreak of cholera at the two places.

The epidemic in the Hedjaz, which has numbered from 7,000 to 10,000 victims, may be said to be extinct, owing to the dispersion of the pilgrims. The epidemic at Aleppo continues, but it is reported as abating. From Aleppo, as a focus of infection, the epidemic has radiated south and east and gained the seaboard and the banks of the Euphrates. At the present time it threatens the towns to the north and north-east on the route of traffic from Aleppo to Sivas. It is stated that the choleraic epidemics of the past year have caused 50,000 deaths in Mesopotamia, 10,000 in Syria, and 15,000 in Persia. The presence on the frontier of Europe of a formidable disease which is never completely extinguished and which needs but a spark to kindle it into a destructive epidemic, makes the subject of quarantine in the Ottoman ports one of interest to the whole civilized world. It has been repeatedly shown that the outbreak of cholera in the Hedjaz is preceded by the prevalence of the disease in an epidemic form in India, the Red Sea ports, or Egypt. The Persian Gulf and the Red Sea are two wide gateways for the invasion of cholera into the Ottoman Empire and thence into Europe, and the points are clearly indicated at which permanent defenses against cholera invasion should be erected in the form of effective quarantine.

Epidemics of cholera are reported from Japan, the Island of Celebes, and at Gallé, in the Island of Ceylon.

Smallpox occurred as an epidemic in the Island of San Miguel, Azores, at St. Paul de Loanda, in Africa, and at Tegucigalpa, Honduras. It was also prevalent on the Mexican border of the United States. In Bogota, United States of Colombia, an epidemic of measles and typhoid fever was observed in April; and in Florence, Italy, an epidemic of typhoid fever prevailed from December 1, 1890, to February 21, 1891. Cases, 1,477; deaths, 229. The last epidemics of grippe reported were in the East Indies, where the disease was widely diffused, but mild in type, and on the English battle-ship *Thunderer*, at Gibraltar.

At Rio de Janeiro, Brazil, yellow fever assumed an epidemic form early in March, 1891, and continued during the summer, with a total number of deaths, as far as reported, of 2,140. The disease was reported present at Havana, Cuba, with a mortality of 195, and at Santiago de Cuba; at San Domingo, and Barbadoes; at Ceara, Bahia, and Paramaribo, in Brazil; at Vera Cruz, in Mexico, and at Bonny, on the west coast of Africa.

During the year 1890 Prof. Koch, at Berlin, made an announcement of the discovery of a cure for tuberculosis, which excited the interest of the civilized world. A supply of "tuberculin," prepared by himself, having been obtained through the President of the United States, formal experiments were instituted by this Bureau under the best possi-



ble circumstances to test the efficiency of this supposed cure. The report of Assistant Surg. Geddings is appended herewith, the result of the experiments having proved disappointing.

. In view of the importance of the subject and the large number of cases of tuberculosis which are constantly under treatment in the marine hospitals, it was deemed proper that an expert bacteriologist connected with the service be sent to Berlin to thoroughly study and acquire the methods adopted by Prof. Koch and his assistants in the preparation and administration of the lymph. Passed Assistant Surgeon J. J. Kinyoun was accordingly detailed for this purpose, and through the special courtesy of the German Government pursued his investigations for a period of four months in the laboratory in Berlin, under the guidance of Prof. Koch, acquiring in this period a knowledge of the technique and the most advanced theories relating to bacteriological research. Dr. Kinyoun also visited and studied in the laboratory of Pasteur, in Paris, and his experience will be utilized for the benefit of the service and the public health in the laboratory connected with the Bureau. His special report upon his work while abroad is appended.

In August, 1891, an international congress of hygiene and demography was held in London, in which, on invitation, this service was represented by Surgeon John Godfrey, under special detail for that duty.

*Leprosy.*—The circular of December 23, 1889 (Marine Hospital Service), forbidding the entry into the United States of cases of leprosy, it is known has been the means of excluding a number of cases of this disease, even prior to the passage of the immigration act under which also they are now excluded. The presence of leprosy, however, in various cities and localities of the United States has given rise to much discussion, both as to the danger to be apprehended and as to the means by which it is to be met, provided that the danger of the spread of this disease is real. Whatever theories may be advanced with regard to the contagiousness or non-contagiousness of leprosy, there can be no doubt that where indifference is manifested as to the isolation of patients the disease slowly spreads, and that careful compulsory isolation is the means by which its spread is checked. It sometimes happens that a case of leprosy is found in some local poorhouse or hospital, and becomes at once a terror and a burden to the local authorities, and when, as in the case of a leper now in the poorhouse in Delaware County, Pa., this patient is not a citizen of the United States, the question of disposal is one which naturally falls to the United States Government for consideration.

No State possesses a leper hospital, and on account of the small number of patients found in each State it does not seem probable that special hospitals will be erected by the State authorities. On this account it is believed that some local authorities indirectly aid in the spread of this disease by their unwillingness to ferret out and discover cases. Having no place provided for their reception, the temptation is to avoid

a decision as to the contagiousness of the disease, and to officially ignore the presence of cases, lest through public clamor they be compelled to remove them. In this manner, especially in large cities, cases of leprosy may be allowed to exist undisturbed. For this reason it is believed that a national leper hospital should be established where such patients can be taken care of. It is not my desire to appear as an alarmist, but the facts relating to the prevalence of leprosy in several neighboring countries which have been reported to this Bureau through the several United States consuls, but which, for state reasons, can not be published, and the results of my own observations in Havana, a city so near to the United States, compel me to the opinion that decisive steps should be taken, not only to prevent its introduction but its spread. Nor do I believe it the part of wisdom to await a larger development of the disease to demonstrate its communicability or the necessity for its suppression.

#### QUARANTINE SERVICE.

The eight quarantine stations have all been in active and successful operation, and notwithstanding the large number of badly infected vessels which have been received, more particularly at the Gulf Quarantine and the South Atlantic Quarantine stations, and the number of cases of yellow fever which have been taken from these vessels and treated in the quarantine hospitals, no case of yellow fever gained admission or developed in any port of the United States. This is a matter for congratulation, because, owing to a severe epidemic of yellow fever in Rio de Janeiro, and to the continuous prevalence of that disease in Havana and an outbreak in Vera Cruz, much apprehension had been felt.

Special credit is due to the medical officers at the stations named for their laborious and successful service.

The appropriation necessary for the proper conduct of the quarantine service each year is \$80,000, but Congress at its last session appropriated but \$50,000, and it became necessary, therefore, either to close some of the quarantines in the midst of the quarantine season or to secure an allotment from the fund appropriated for preventing the spread of epidemic diseases. Accordingly request was made of the President, March 19, 1891, to the effect that \$20,000 of this fund be set aside for the maintenance of all the quarantines during the months of May and June, which request was approved and the quarantines maintained during the rest of the fiscal year. They are now being conducted under the general appropriation of \$50,000, which is insufficient for maintaining them during the whole of the current year. A deficiency appropriation will be necessary, and is embodied in the estimates for the needs of the service to be presented to Congress at its coming session.

The opening of the new quarantine station on Angel Island, San Francisco Bay, has caused an increased demand on the yearly appropriation.



An important item in connection with the quarantine service of the past season is the action taken by the Department with regard to the disinfection of old rags from Marseilles, France, the report upon which subject, together with a copy of the circular issued thereon, is included in this report.

A report of the quarantine service, by stations, is also appended.

#### INSPECTION SERVICE.

Closely connected with the maritime quarantines is the inspection service maintained by the Marine Hospital Service, the most important being that at Havana, under the charge of Dr. D. M. Burgess, to whose special report attention is invited.

Owing to the reports of yellow fever in Mexico and to the prevalence in that country of smallpox, a sanitary inspection service has been maintained on the Mexican frontier, at El Paso, Tex., and the report of the inspector, Dr. E. Alexander, is appended.

A sanitary inspector was also employed at the port of Rio Janeiro from December, 1890, to May, 1891, inclusive.

In accordance with authority contained in section 5 of the law of April 29, 1878, certain local quarantine officers have been designated as United States inspectors and clothed with the authority of United States laws. These inspectors are located as follows:

One for the State of Florida; two at San Francisco; one each at Cleveland, Toledo, Fairport Harbor, Lorain, Ashtabula, and Sandusky, Ohio; one at Portland, Me.; one at Vanceboro, Me.

In connection with the inspection service, mention should be made of letters received from the governor and State health officer of the State of Florida, calling attention to the necessity of preventing smuggling on the south Gulf coast of Florida, not only for the purpose of breaking up illicit trade, but for preventing, through the smugglers, who come from Cuba, the introduction of contagious disease. In accordance with their request, a report was made urging an appropriation by Congress of a sum sufficient to build a light-draft steamer for the double purpose of protecting the revenue and the public health, which steamer it was urged should be under the control and management of the Revenue Marine Service, but with special quarters for an officer of the Marine Hospital Service, the latter's authority to be considered paramount. Accordingly, a bill was prepared and introduced into Congress calling for such appropriation, but, while not opposed, was not passed. The necessity for such a steamer still remains, and it is hoped that the bill will be reintroduced and the steamer provided.

#### THE IMMIGRATION SERVICE.

Appended will be found the law approved March 3, 1891, relative to immigration and the importation of aliens under contract or agreement

to perform labor, a perusal of which will show the duties devolving upon surgeons of the Marine Hospital Service in connection therewith.

At the several ports of the United States where immigrants land, the medical inspection of immigrants prior to rejection still devolves upon officers of this service, but at the port of New York a technicality was raised in the courts to the effect that the medical rejection must be made by a full surgeon of the Marine Hospital Service, or by a civil surgeon appointed for that purpose. The term "surgeon" as it occurs in the law is evidently used in its general sense, but in the efforts of interested parties to break down the inspection service at the start it was claimed, and the claim was sustained by the judge, that a full surgeon, of which there are but a limited number, must make the examinations. Following this decision a civil surgeon has been appointed at the port of New York under the authority of the Superintendent of Immigration.

In connection with the immigration service attention is invited to the correspondence with the secretary of the State board of health of Minnesota. Acting upon the well-known wishes of this officer, it seemed incumbent upon the Bureau to take some action, and a request in behalf of the State board of health of Minnesota was made, to the end that when immigrants arrive at New York, having either come from an infected port or having been on board of an infected vessel, their point of destination in the State of Minnesota should be transmitted promptly to the secretary of the State board of health, the end in view being a careful examination of the baggage of such immigrants.

The correspondence appended will show that this plan has been successfully carried out, much to the gratification of the State board of health of Minnesota; and it having been shown to be feasible in the case of one State, I have recommended that the same information be transmitted promptly to all other State boards of health. Application for this notification has been received from the secretary of the State board of health of Michigan.

#### LABORATORIES.

The laboratories of the service are two in number, and are both supplied with a full equipment of the most approved scientific apparatus. The removal of the Bureau headquarters to the present location in the Butler mansion has made possible the transfer of the bacteriological laboratory from the hospital at New York to the upper story of this building, where it is proposed to carry on investigations into the causes of disease, to examine pathological specimens forwarded from the several hospitals, and to render such aid to State and local boards of health as may be requested in the interest of the public health. A full report of the transactions of this laboratory will be found appended, and it should be remarked that the absence of the officer in charge during half of the year in Europe has prevented a large number of experiments that would otherwise have been made.



A report also of the work done in the laboratory at the Dry Tortugas is appended. The officer in charge of this laboratory, in addition to his scientific work, has been engaged in much necessary labor in connection with the construction of the quarantine plant and maintenance of the quarantine.

#### SANITARY REPORTS AND STATISTICS.

During the year the regular Weekly Abstract of Sanitary Reports have been published by the Bureau, conveying intelligence to the various health officers of the United States and others, regarding the health of the different countries and cities of the world. The Abstracts have contained pertinent information concerning the epidemics in the United States, the reports of the several States of the Union, the yearly and monthly reports of their cities, a weekly mortality table of the cities of the United States, and a weekly table of temperature and rainfall, showing the excess and deficiency of each in every principal city of the United States; the last-mentioned table being furnished first by the Signal Office of the War Department and later by the Department of Agriculture. The Abstract also contains special reports received from the Department of State from the various United States consuls, and a mortality table of foreign cities. Many expressions of satisfaction have been received from health officers with regard to the information derived from these Abstracts, but the division of sanitary reports and statistics, which is now in actual operation in the Bureau, should be enlarged so that its publications may be unsurpassed in completeness. This can be done by a more liberal allotment made to the stationery division of the Treasury out of the sum annually appropriated for public printing.

A financial statement is appended.

In closing this report acknowledgment is due to the medical officers of the service for their zealous coöperation in the conduct of its affairs; also to the clerks of the Bureau for their faithful and intelligent aid.

I have the honor to remain, very respectfully, yours,

WALTER WYMAN,  
*Supervising Surgeon-General.*

Hon. CHARLES FOSTER,  
*Secretary of the Treasury.*





## SPECIAL REPORTS AND CORRESPONDENCE.

(FINANCIAL, SANITARY, AND MISCELLANEOUS.)

### FINANCIAL STATEMENT.

#### RECEIPTS AND EXPENDITURES, U. S. MARINE HOSPITAL SERVICE, FOR THE FISCAL YEAR ENDED JUNE 30, 1891.

The balance available at the commencement of the fiscal year was \$106,295.77, and the receipts from all sources were \$533,760.77.

The expenditures were \$564,528.53, leaving a balance on hand at the close of the fiscal year of \$75,528.01.

#### SUMMARY.

Balance July 1, 1890 .....	\$106, 295. 77
Receipts, tonnage tax collected.....	520, 333. 46
Repayments for care and treatment of foreign seamen, etc.....	13, 427. 31
Total available during fiscal year .....	640, 056. 54
Expenditures .....	564, 528. 53
Balance June 30, 1891 .....	75, 528. 01

#### *Expenditures from appropriation for quarantine service, 1891.*

Appropriation, act approved August 30, 1890.....	\$50, 000. 00
Repayments for care and treatment of foreign seamen, etc.....	62. 00
Total available during fiscal year .....	50, 062. 00
Expenditures .....	50, 058. 60
Unexpended balance.....	3. 40

#### *Expenditures by stations, etc.*

Cape Charles .....	\$11, 597. 03
Delaware Breakwater.....	6, 836. 33
Gulf.....	9, 927. 57
Key West.....	5, 021. 15
Port Townsend .....	2, 264. 40
San Diego .....	1, 600. 00
San Francisco .....	565. 12
South Atlantic.....	11, 140. 22
Miscellaneous.....	11. 95
Marine Hospital Service, for supplies furnished.....	1, 048. 29
Stationery for the several stations .....	46. 54
Total.....	50, 058. 60

In addition to the above, \$20,000 have been expended at the several quarantine stations from the appropriation for preventing the spread of epidemic diseases, such amount having been set aside for that purpose by the President.

*Expenditures, etc., from the appropriation for preventing the spread of epidemic diseases.*

Balance available July 1, 1890.....	\$162, 535. 49
Amount transferred from the appropriation "In aid of yellow-fever sufferers".....	25, 000. 00
Total available during fiscal year .....	187, 535. 49
Expenditures to June 30, 1891.....	30, 361. 17
Balance June 30, 1891 .....	157, 174. 32

*Appropriations for quarantine stations, act approved August 1, 1888.*

Stations.	Balance July 1, 1890.	Expenditures during fiscal year.	Balance June 30, 1891.
Cape Charles.....	\$72, 152. 75	.....	\$72, 152. 75
Delaware Breakwater.....	46, 617. 53	\$16, 854. 49	29, 763. 04
Key West.....	81, 823. 90	368. 40	81, 455. 50
Port Townsend .....	55, 430. 44	.....	55, 430. 44
San Diego.....	54, 796. 82	5, 266. 79	49, 530. 03
San Francisco.....	99, 016. 81	99, 016. 81	.....
South Atlantic.....	3, 270. 05	3, 060. 78	209. 27
Removal of quarantine station from Ship Island, Miss .....	834. 95	185. 50	649. 45

*San Francisco quarantine, fumigating steamer.*

Amount appropriated, act approved August 30, 1890.....	\$30, 000. 00
Expenditures to June 30, 1891.....	1, 003. 25
Balance June 30, 1891.....	28, 996. 75

A contract has been entered into for the construction of a steamer that will require all of the above balance.

*Expenditures by the Supervising Architect.*

Name of hospital.	Appropriations for public buildings.	
	Repairs and preservation.	Heating apparatus.
Baltimore, Md .....	\$1, 478. 01	\$121. 80
Cairo, Ill.....	1, 828. 18	36. 05
Chicago, Ill .....	1, 426. 39	215. 20
Chelsea, Mass.....	2, 444. 36	1, 222. 44
Cincinnati, Ohio.....	1, 911. 49	111. 80
Detroit, Mich.....	1, 910. 10	4. 88
Key West, Fla.....	92. 20	.....
Louisville, Ky .....	1, 063. 75	.....
Memphis, Tenn .....	270. 08	158. 10
Mobile, Ala .....	464. 08	7. 00
New Orleans, La.....	1, 039. 06	183. 75
Portland, Me.....	1, 236. 32	482. 90
Port Townsend, Wash.....	299. 77	.....
St. Louis, Mo.....	3, 789. 05	191. 03
San Francisco, Cal .....	1, 117. 50	241. 97
Vineyard Haven, Mass.....	459. 42	20. 00
Wilmington, N. C.....	540. 93	180. 00

*From special appropriation.*

Chicago (Ill.) Marine Hospital, approaches and breakwater.....	\$5, 814. 97
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## MARINE HOSPITALS.

The following is a statement of the repairs and alterations made during the fiscal year, and of repairs and alterations still needed at the several hospitals:

*Hospital at Baltimore, Md. (erected 1887).*—Surgeon W. H. H. Hutton reports the following repairs made in this hospital during the past year: The original single and double doors, made of yellow pine, having become so warped and shrunken as to be practically useless, were replaced by those made of white pine, carefully fitted and painted; most of the windows have been refitted, and some plastering replaced.

The cisterns, for which the hospital depends mostly for its water supply, have been repaired by putting in new bottoms and cementing afresh the sides, which now prevents much leakage that previously existed. The ironwork on the retaining wall and approaches has been repainted; as also the piazzas, bridges, and external baseboards. The walls and ceiling of the hospital kitchen, some halls and rooms in the surgeon's quarters, as well as all the window frames, doors, and door frames in the buildings, and the ironwork in the steam-heating apparatus and laundry. A new set of automatic dampers, working at half-pound pressure, have been fitted to the heating boilers; about 300 feet of the main underground steam pipe has been re-covered; minor repairs have been made, such as relining the furnaces with fire brick and repairing small heating pipes.

The following repairs are necessary: The mortar in many of the brick piers supporting the wards, in the stone retaining wall, and in several of the chimneys has worked out and should be replaced. The wooden floors in the laundry and drying rooms are rotted and are unsafe. They should be replaced with concrete and cement.

Much decay is apparent in the woodwork of the piazzas, in the base of roof supports, steps, and approaches to all the buildings. The buildings should be repainted, having had no general work of this kind since their construction five years ago.

*Hospital at Boston, Mass. (erected 1860).*—Surgeon Fairfax Irwin reports repairs have been made to the boiler house by widening ash pit, improving drainage, and connecting it with a new tunnel to coal shed.

Repairs have been made to the heating apparatus, a new smokestack constructed, the old and defective steam-return pipes in the basement replaced by new, old lead pipes in lavatories on second and third floors renewed, together with a new sink in the operating room and hospital kitchen.

Minor repairs have been made to the hospital roof.

Repairs have been made in the keeper's lodge by placing it on a brick foundation and rebuilding internally. The morgue has been resingled and painted. The surgeon's and steward's offices, dispensary, and waiting room, together with the exterior iron and wood work, have been painted.

Authorization has been given for the construction of a new fence for the hospital property.

The following repairs and additions are recommended:

The brick arches and pavement of piazzas, with the hospital walks and driveways, need attention. New floors are necessary and recommended in many of the halls and wards.

The exterior of the building needs repainting and oiling, and the walls and ceilings of wards and dining rooms require paint. A new laundry plant should be furnished the hospital. General repairs to plumbing, replacing lead pipe with brass, providing ventilation for traps to water closets, bath tubs, and urinals, to place it in a condition to accord with modern ideas, are necessary.

*Marine hospital at Cairo, Ill. (erected 1885).*—Passed Assistant Surgeon R. M. Woodward reports **only** minor repairs made during the past fiscal year; these have been mostly painting the interior of the buildings and plumbing. New sewers have been constructed, and the roadway in front grounds covered with crushed stone.

Repairs and additions to the heating apparatus are now needed. Some alterations to the plumbing, and painting the exterior of the executive, laundry, and kitchen buildings.

*Hospital at Chicago, Ill. (erected 1873).*—Surgeon John B. Hamilton reports the following repairs and alterations made during the past fiscal year:

Repairs, though not of an expensive character, have been made to the steam heating apparatus, as also to the hot-water tank and steam pump. This work has been done mostly by the hospital engineer. The floors of north and south halls of basement of hospital building were laid in cement. The main hall, kitchen, and dining-room floors, also of basement, were relaid in hard pine. The main iron stairway from basement to first floor was painted, and new wainscoting of cement applied. A new trap door was fixed in the roof. The stable roof was resingled and painted. The verandas and porches of the hospital building were painted anew. All exposed ironwork was repainted.

The work on the breakwater has progressed steadily under the direction of the superintendent of repairs, Mr. M. E. Bell. The value of the land reclaimed by this breakwater is much more than the cost of the work, and it therefore follows that not only has the lake front been preserved, but the property rendered more valuable to the Government.

The plumbing in the water closets attached to the wards is old and the pipes are frequently breaking. The supply and waste pipes will require renewal throughout the year.

Brass pipes should be put in; they will cost more in the beginning, but will be cheaper in the end.

Water pipes should be laid in the grounds, and a small hot-house for the propagation of plants. The question of the erection of a small chapel and mortuary building is worthy of consideration.

The quarters for officers is insufficient. The family of the passed assistant surgeon and the assistant surgeon must use a dining room and kitchen in common.



That is to say, there are only two sets of quarters, with no separate quarters for the stewards, and as there are necessarily three commissioned officers stationed here, it follows that outside quarters for the commandant would not only be desirable but are necessary to the most efficient conduct of the station. This cottage should be built of the same stone as the hospital, and would probably cost \$15,000. Once built it would be permanent and cost little for repairs.

The temporary wooden fences on the sides of the reservation have nearly gone to decay and should be replaced by brick or stone walls at the earliest possible date. These should not be very high, and if covered with ivy in time would be handsome. The fences were built a quarter of a century ago and at a time when the hospital needed many things more important. It would be economical in the long run to construct permanent walls and at the same time add to the beauty and finish of the reservation. The present fences can not be taken away without exposing to view the back yards and the family wash of a great number of the residents in the vicinity, whose lots abut upon the side of the reservation, and the number will steadily increase until all the lots are occupied.

The erection of the walls is also necessary to prevent the blowing of sand on the hospital lawn from some of the lots not turfed. The expense will be about \$2.50 per running foot.

*Hospital at Cincinnati, Ohio (erected 1884).*—Surgeon W. H. Long reports that during the past year the interior of the building has been painted and minor repairs made to the plumbing. Repairs have been made to the sidewalk and many of the windows reglazed.

Authorization by the Department was made in June, 1891, for the construction of a storeroom in the basement of the hospital, and it will be soon completed. For the fiscal year ending June 30, 1892, general repairs will be necessary to the hospital building, including painting, repair to sidewalks, together with the purchase and planting of shade trees.

*Hospital at Detroit, Mich. (erected 1857).*—Surgeon George W. Stoner reports that during the past fiscal year the hospital building has been painted throughout, much improving its general appearance. By the glazing of several doors much more light has been given the halls, and a small hall room, used by the steward as a dining room, greatly improved. Repairs have been made in the stable, and the old partition separating the stalls from the carriage floor removed in order to gain better ventilation. The driveways have been improved and the front of the reservation graded and resodded. On this a fine flagstaff has been placed.

As regards an estimate of the repairs which will be necessary during the ensuing fiscal year, I beg leave to state that, in view of the proposed alterations in the hospital building, in the event of an appropriation next session of Congress for the additional building repeatedly recommended by officers in charge of this station, and by the Supervising Surgeon-General, and which passed the Senate last session, only such repairs should be made, in my opinion, as may be absolutely necessary, and which will probably include only minor items.

The necessities of all repairs and improvements at this station can be met only by the appropriation as contemplated in the Senate bill referred to, which it is hoped will receive your approval and indorsement.

*Hospital at Evansville, Ind. (erected during the present year).*—Assistant Surgeon George T. Vaughan makes the following report:

I have the honor to make the following statement as to the location, character of construction, capacity, and cost of the new hospital at this port:

The lot upon which the buildings are located contains 10 acres, lying north of the Ohio River, west of the city of Evansville, and about 2 miles distant from the custom-house. The buildings consist of an executive building, laundry, and boiler house of brick, two wards, medical officers' quarters, tank house, dead house, and stable of wood; all situated on a hillock near the eastern boundary of the ground.

The wards are constructed on the pavilion plan, being one story high and open to the rafters, with ventilators in the roof. At one end of each ward are attached the smoking room, hot-water boiler room, water closets, and the necessary apparatus for bathing, while at the other end are three smaller rooms for attendants and nurses. The basement of the laundry building is supplied with a disinfecter and the most approved steam laundry machinery. Each ward has a capacity for fifteen patients, allowing 120 square feet of floor space to the patient.

The wards are provided with verandas, and are connected with the other buildings, thus allowing hospital administration without exposure to inclement weather. The executive building contains the surgeon's office, steward's office, operating room, and dispensary on the first floor, and six bedrooms on the second. The total cost of the grounds and buildings, exclusive of the heating apparatus, has been \$78,795.

This hospital will be occupied as soon as heating apparatus is completed.

*Hospital at Louisville, Ky. (erected 1852).*—Surgeon C. S. D. Fessenden reports repairs to plumbing, woodwork, and brick sidewalk. An appropriation was made during the last session of Congress for a morgue, but as the lowest bid for its construction was in excess of the amount authorized, the matter has been delayed for an increase in the appropriation. The settling of the floors and cracking of the ceilings in the southwest wing of the hospital building led to the discovery that the joist and stud partitions from the basement to the third floor were in a decayed condition, and threatened very serious results. Plans for this repair, by the construction of a brick wall as a support for the floors, have been transmitted to the Supervising Architect of the Treasury Department, by Mr. D. X. Murphy, superintendent of the United States court-house and post-office.

It is recommended that the water-closets on the second floor be removed and replaced by those of a new and improved style, and that the hospital building be painted.

*Hospital at Key West, Fla. (erected 1845).*—Surgeon R. D. Murray in charge.

This hospital is in fair condition, and but few alterations or repairs have been made during the past fiscal year.

The last session of Congress made an appropriation of \$3,000 for an infection ward and wharf. These have not yet been completed.

*Hospital at Memphis, Tenn. (erected 1885).*—Passed Assistant Surgeon L. L. Williams reports that repairs have been made to the main sewer,



plumbing, electric bells, and minor miscellaneous work done to the building.

The work of repairing embankments and revetments, cementing floors in laundry and executive building, constructing concrete pavement and gutters around medical officers' quarters, and repairing gravel road is now in progress.

The following repairs will be needed during the ensuing fiscal year: Renewal of veranda and gallery floors connecting the buildings, and the repair of the fence on the west side of the reservation. It is recommended that the old and useless windmill be taken down, and the old material utilized in constructing an outhouse for coal, tools, and unserviceable property. A hot-water boiler is needed in the west ward; ridge ventilators of galvanized iron are recommended for the wards. Minor repairs will be needed to the kitchen and ward roofs.

*Hospital at Mobile, Ala. erected (1843).*—Surgeon John Vansant reports that the exterior of the hospital and outbuildings as also the fences were whitewashed by the hospital attendants; the porticos and cornices of the hospital, together with all roofs and gutters, have been painted; a new closet built under the steps at east end of building, and a new partition erected at the head of stairway in the surgeon's quarters; wire screens have been placed in most of the doors and windows in the medical officers' and steward's quarters. Repairs have been made to the floors in patients' dining room, hall, and attendants' bed-rooms; hearths renewed and grates reset; new stationary steam wash-tubs have been placed in the laundry, with the necessary hot and cold water connections; minor repairs have been made to water pipes in bath rooms and hospital kitchen.

But few repairs will be needed during the ensuing fiscal year unless some unforeseen accident should occur.

*Hospital at New Orleans, La. (erected 1885).*—Surgeon James M. Gasaway reports the following repairs and alterations made during the past year:

A new hopper placed in water-closet of west ward, and the plumbing overhauled; a new bath tub, water-closet, and washbowl placed in internes and steward's quarters, replacing old and worn out articles, together with a cooking range and water tank. The water-service pipe from the main supply to assistant surgeon's quarters having become rusted through was renewed. The main inlet water pipe from the river having been broken by a coal barge surreptitiously placed on it, was raised and repaired.

The electric-bell system was overhauled and repaired.

New roofs were placed on assistant surgeon's quarters of shingles, and on porter's lodge of galvanized iron. The tin roof of the surgeon's quarters, and shingle roof of laundress' house were thoroughly repaired.

The outside of the surgeon's quarters, the inside of the first floor of the executive building and porter's lodge, together with all the porches, galleries, landings and steps of all buildings, except surgeon's quarters, stables, and laundry, were given two coats of paint of proper colors. The flagstaff was straightened and braces applied, a new ball and truck attached, and painted. The tubes of main boiler were re-

newed, and a water heater and purifier attached, with some minor repairs to piping and renewal of worn-out valves. Gas fixtures were placed throughout the surgeon's and assistant surgeon's quarters. The range and steam table in the main hospital kitchen, were overhauled and repaired, a new smokestack made and fitted, and a number of minor repairs made to stoves and ranges of the station.

Steps and window shutters have been repaired, also pillars and porches. The window and door screens of the executive building, kitchen, and quarters have been repaired and painted. With the exception of plumbing and metal work, and the shingling, all repairs and improvements have been made with purchased material by the hospital attendants, assisted by occasional day labor authorized by the Department.

The board of levees have constructed a new board levee along the river front of this reservation, forming a portion of the levee along the Mississippi River for many miles, and have removed the old and unsightly mounds abutting on the walls of this station formerly serving that purpose.

The contractors have begun the installation of the electric-light plant, for which an appropriation was made by the last Congress.

The following repairs and additions are reported necessary:

A new ward should be built as per the original plan of this hospital, to prevent the overcrowding now unavoidable during the winter and spring; a new laundry is required with modern steam appliances to replace the antiquated methods still in vogue at this station. This building should also contain quarters for attendants and storerooms. The water mains laid in this reservation are not large enough for the demand. Many of them are so choked with rust that no pressure will cause water to flow in the second floor of the buildings if an outside hydrant is running. This, with the insufficient pressure, renders the station helpless in case of fire, always to be apprehended, where the buildings are, as in this case, of wood.

The roadways are merely wagon tracks, which have been from time to time repaired by oyster shells and rubbish. Broad concrete roadways, for which plans have been forwarded, should give access to all parts of the reservation.

The pavement around three sides of the reservation should be relaid in cement to prevent the growth of grass and weeds between the bricks.

Wooden cisterns for rain water should be constructed at the quarters of the assistant surgeon. Rain water is the only safe water to drink at this station, the river water being productive of dysentery and other disorders.

*Hospital at Portland, Me. (erected 1859).*—Surgeon Henry W. Sawtelle reports this hospital as in good condition. A storeroom has been utilized as a ward by the introduction of a sixty-pipe steam radiator, repairs and additions made to water connections in surgeon's kitchen, hospital lavatory, operating room, and dispensary. Much of the ceiling throughout the hospital has been repaired and whitened, ward and hall floors stained and varnished, base boards, veranda floors, and exposed iron-work painted. Two horizontal steam boilers have been retubed. Repairs have been made to the iron fence, which has been straightened and painted. Repairs of a minor character only will be needed during the ensuing fiscal year. New shelving, drawers, and counter are needed in the dispensary. There was appropriated by the last Congress \$3,000 for the introduction of electric lights into the hospital, which will probably be done at an early date.

*Hospital at Port Townsend, Wash. (established 1883).*—Passed Assistant Surgeon A. H. Glennan reports repairs of only a minor character



having been made at this hospital during the past fiscal year. Repairs have been made to fireplaces; wards, outbuildings, and fences have been whitewashed, with painting to inside woodwork. This has been done principally by the hospital attendants. Some rooms in the surgeons' and stewards' quarters have been papered. Dr. Glennan also reports—

That the amount of shipping at this port has so rapidly increased that the buildings are now inadequate for the proper care of the patients by the service. I beg leave to renew my recommendation for the construction of a compact hospital upon the block owned by the service, and numbered 102 upon the city chart. For this climate it would appear that the pavilion plan would be desirable. The repairs needed for the ensuing fiscal year are small.

*Hospital at San Francisco, Cal. (erected 1875).*—Surgeon Preston H. Bailhache reports repairs made to plumbing, roofs, ranges, stoves, and fireplaces. Windows have been furnished with screens and shades, and the interior walls of some of the buildings whitened. Repairs have also been made to water tanks and fences. An item in the sundry civil bill appropriates \$10,000 for the construction of a new ward to this hospital, and the same amount for steam-heating apparatus; plans for which are now being made by the supervising architect. Extensive repairs are necessary to this hospital, it having been in use for over fifteen years. New floors are required in the wards, dining rooms, and porches, alterations in the officers' quarters, and the painting of the exterior and interior of the buildings. The quarters for attendants are overcrowded and ill-arranged. It is recommended that all the building be raised, as a precaution from dampness and to secure better ventilation. There has been planted during the past fiscal year 1,500 small trees, and upwards of 3,000 flowering plants, shrubs, and rose bushes, most of which are in a flourishing condition, and adding much to the appearance of the grounds. I am indebted to the superintendent of Golden Gate Park for supplying me with them free of cost.

*Hospital at Wilmington, N. C. (erected 1859).*—Passed Assistant Surgeon D. A. Carmichael reports the following repairs and alterations: The exterior of the building, including the verandas and cupola, has been painted; and in the interior the rooms of the first and second floors. A cement floor, and some alterations to the plumbing, have been made in the wash room and water-closet. Needed repairs also have been made to the hospital range. A small elevator, with a carrying capacity of 200 pounds, has been constructed to run between the basement and upper floors of the building, with suitable openings and doors at each landing, and a system of electric bells to furnish communication from floor to floor. It has proved serviceable and greatly diminishes the labor of the attendants. Repairs of only a minor character will be required during the ensuing fiscal year. These will consist of painting, wire screens, and necessary repairs to plumbing.

*Hospital at Vineyard Haven, Mass. (established 1880).*—Passed Assist-

ant Surgeon Charles E. Banks reports the following repairs made at this station. The buildings have been painted and a new floor put in the ward. The dead house and baggage room have been repaired and enlarged.

An appropriation made by Congress for the enlargement of this station will be available July 1, 1891, and the work will probably be begun as soon as the settlement of the suit for the additional land can be accomplished. Should this work progress rapidly, but minor repairs will be necessary, but if there is delay, some expenditure will be necessary on the hospital kitchen.

*Hospital at St. Louis, Mo. (erected 1885).*—Passed Assistant Surgeon C. T. Peckham reports the following repairs made at this hospital during the past fiscal year: The frame wards have been painted, as has the exposed woodwork on the executive and the old hospital building. New tin roofs have been put on the wards. The plumbing in the lavatories, bath rooms, and water-closets has been repaired. The walls in the wards, executive building, and occupied part of the old hospital building need painting. The steam boiler requires resetting, and the cracked walls around it repaired. It is recommended that steam heat be introduced into the occupied portions of the old hospital building, and that the hospital sewer be extended, and connected with the city sewer on the street north of the reservation. A system of electric bells is needed.

Statement of expenditures to U. S. marine hospitals from July 1, 1890, to July 1, 1891, from the following appropriations:

	Repairs and preser- vation pub- lic build- ings.	Heating apparatus, public buildings.
Baltimore, Md .....	\$1,478.01	\$121.80
Cairo, Ill. ....	1,828.18	36.05
Chicago, Ill. ....	1,426.39	215.20
Boston, Mass .....	2,444.36	1,222.44
Cincinnati, Ohio .....	1,911.49	111.80
Detroit, Mich .....	1,910.10	4.88
Key West, Fla. ....	92.20	.....
Louisville, Ky .....	1,063.75	.....
Memphis, Tenn .....	270.08	158.10
Mobile, Ala. ....	464.08	7.00
New Orleans, La. ....	1,039.06	183.75
Portland, Me .....	1,236.32	482.90
Port Townsend, Wash .....	299.77	.....
St. Louis, Mo .....	3,789.05	191.03
San Francisco, Cal .....	1,117.50	241.97
Vineyard Haven, Mass .....	459.42	20.00
Wilmington, N. C .....	540.93	180.00

*Special appropriation.*

Chicago, Ill., approaches and breakwater ..... \$5,814.97



## DETAILED REPORT OF THE NATIONAL QUARANTINES.

The following is a statement in detail of the operations of the National Quarantines, with pertinent facts regarding each station:

## DELAWARE BREAKWATER QUARANTINE.

[Post-office address, Lewes, Del. See Annual Report, 1889, p. 110, for diagram of reservation.]

Between October 15, 1890, and October 3, 1891, there were 294 vessels hailed and inspected, 12 vessels detained in quarantine and disinfected, and 4 vessels which were detained for observation were passed without disinfection. Boarding and inspection of vessels, detention and treatment of those infected, have been carried on at this station throughout the whole year. The quarantine steamer *Pasteur*, which is used for boarding and also for the disinfection of vessels, has been in commission during the entire quarantine season, and is at present in good repair. This vessel, however, can not be considered a suitable one for boarding purposes at this station, as she must encounter the heavy seas outside of the breakwater in three-fourths of all her inspection trips, for which service an unusually staunch and seaworthy steamer is required. Certain improvements to her keel and the changing of her propeller to one of larger size are contemplated, and it is believed that these changes will in a great measure meet the requirements. A complete steam disinfecting plant, with all the necessary accessories, for which there is an available appropriation, will immediately be built either upon the iron pier or upon the quarantine reservation adjoining the pier. The hospital, lazaretto, boat house, and officers' quarters are adequate for the requirements of the service and are in good repair. The station is under the immediate charge of an acting assistant surgeon of the service, who is also in command of the quarantine steamer. The complement of officers and crew of the steamer *Pasteur*, including the medical officer, is 9, and there are 2 attendants on duty at the hospital.

## REPORT OF INSPECTION OF THE DELAWARE BREAKWATER QUARANTINE.

LEWES, DEL., *April 6, 1891.*

SIR: In accordance with orders dated March 26, 1891, I arrived at this station Saturday night, the 4th instant, and being met by Dr. William. P. Orr, the acting assistant surgeon in charge of the United States quarantine station near the Delaware Breakwater, learned from him a number of facts which are embraced in the following report. Many of the points embraced herein are already well known to yourself, and some of them may be found in the various letters and reports from this station among the files of the Bureau. A few items, however, have not been previously mentioned. Therefore, and for the sake of reference, I shall include both new and old information in this attempt to give a clear account of the station's *raison d'être*, its present scope, its actual condition, and its requirements for becoming a perfect quarantine.

*Historical.*—In 1883 a vessel from an infected port bound for the Delaware Breakwater landed her passengers here, who went to Philadelphia by rail, the vessel re-

maining at the Breakwater awaiting orders. There was no local or other quarantine officer here, the only restraint being the presence of a customs inspector, Dr. H. R. Burton, whose care was only for the protection of the revenue, and who therefore allowed the passengers to depart. The newspapers of Philadelphia vigorously called attention to the danger involved in this procedure, and correspondence was opened with the Marine Hospital Bureau by the Philadelphia board of health looking toward the establishment of a Government quarantine at this point, which, of course, is beyond the jurisdiction of Philadelphia or Pennsylvania authority. The Philadelphia board made known its wants in part through Surgeon P. H. Bailhache, then in charge of the marine hospital service in that city. Later, by your direction, Surgeon George W. Stoner visited the station and made report upon the availability of the site, the importance of having a quarantine here, etc., and after a recommendation from the senior Senator from Delaware, Senator Bayard, action was taken by yourself. Dr. Stoner was ordered to open the quarantine, using the revenue-cutter *Tench Coxe* as a boarding steamer, in the summer of 1884 (August 1).

A cottage hospital was erected the same summer—completed October 20—built upon what was supposed to be Government land. Dr. Orr was appointed in August of the same year, and on completion of the hospital Dr. Stoner was transferred elsewhere and Dr. Orr placed in charge.

Besides the action of the Philadelphia authorities, in July, 1884, the collector of customs at Wilmington made known to the Surgeon-General the general desire of the authorities of that city in the matter of quarantine, and resolutions were passed by the Wilmington board of health (L. P. Bush, M. D., president) formally requesting the United States Government to establish the quarantine. The same resolutions in substance were passed by the Lewes board of health (Dr. H. R. Burton, president). Cholera was then threatening.

*The theory and practice of quarantine at the Delaware Breakwater.*—First, as to quarantine surveillance. Vessels entering the mouth of Delaware Bay are bound either for the Delaware Breakwater, which is a port of call, or for points up the bay, viz, Philadelphia, Camden, Wilmington, or Chester. The control which the United States quarantine officer can exercise over vessels bound up the bay depends upon the action of the local boards of health (or State boards) of the cities named.

These boards (at least of Philadelphia and Camden) issue yearly proclamations requiring vessels from infected ports or vessels with sickness on board to stop at the Breakwater quarantine. The pilots are instructed accordingly, and the pilots therefore act as boarding officers, for they examine the bills of health and make inquiries of the captain regarding the health of passengers and crew.

Theoretically and generally this plan works well, but sometimes vessels from an infected port ignore the Delaware Breakwater quarantine and proceed direct to Philadelphia. At the Lazaretto, 9 miles below the city, they are examined by the local quarantine officer and on his certificate are admitted to entry by the collector of customs and allowed to discharge by the city authorities. This is a weakness in the method of the local authorities, for if they direct all vessels from infected ports to stop at the Breakwater, but allow certain ones to ignore this rule, it is evident the practice of ignoring will increase, and with this irregularity some degree of inefficiency will certainly result.

In my opinion and that of Dr. Orr the only solution of the difficulty is to have all vessels for Philadelphia boarded by the quarantine officer at the Breakwater and to have the local board give assurance that none will be admitted to entry during the active season unless they have the certificate of the United States quarantine officer at the mouth of the bay.

The wishes, however, of the Philadelphia board, whatever they may be, can appropriately be carried out by Dr. Orr. If the board directs that steamers from Havana (which is always an infected port) shall not be detained provided there is no sickness or evidence of contagion on board, the doctor can readily give his certificate or



indorsement on the bill of health, "Examined and passed, by request of the board of health, to the Lazaretto."

In other words, each local board can make its own regulations as to vessels bound thereto and Dr. Orr can carry them out. But they should all be inspected by Dr. Orr.

Besides vessels bound up the bay, a large number come into the Breakwater as a port of call. All these are treated by Dr. Orr during the active season as though bound for Lewes, and must undergo the examinations and restrictions *nolens volens*. The authority for this is in a resolution passed by the Lewes board of health, forbidding a pilot or any other person from a vessel to land at Lewes until after the vessel's inspection by the national quarantine officer. It is evident that in the case of vessels making in only for a harbor and desiring no communication with the shore, there is no authority for quarantine examination, but if from a foreign port they are nevertheless boarded and examined by Dr. Orr.

*Character of vessels and cargoes.*—As to the character of vessels and cargoes, those going to Philadelphia are of every description, tin and iron ore particularly. Three-fourths of the steamers to Philadelphia are loaded with iron ore. Of those coming into the Breakwater nine-tenths of them are from the West Indies loaded with sugar and molasses; the rest are vessels in ballast from South American ports, particularly Rio and Buenos Ayres. In 1886 and 1887 steamers from Mediterranean ports were obliged to stop here, but in the last three years most all vessels at the Breakwater have been sailing vessels. The steamers have generally water ballast; the sailing vessels, sand and stone.

As to coasting vessels, they are spoken, and vessels from Florida are inspected; those from ports north of Florida are not.

Pilots are obliged to remain in quarantine if they bring in a quarantinable vessel. They have the privilege, however, of conveying a vessel to the anchorage, instead of going aboard, and receive the same pay; therefore it is their own unnecessary misfortune if they find themselves aboard an infected ship.

*Delaware breakwater quarantine reservation.*—This is directly opposite the Breakwater, embraces about 40 acres, exclusive of the iron pier reservation, and is 3 miles from Lewes.

The first building, the cottage hospital, was erected in October, 1884, the boat-house the following year, and the second hospital in August, 1888.

It was found after the erection of the first building that the reservation did not belong to the United States as a military reservation (having been forfeited back to the State of Delaware), but an act of the legislature was passed in 1889 ceding the reservation to the General Government. The reservation has a front on the water of 1,500 feet, and has a depth of 1,200 feet. The water front is a line almost due east and west. The tip of Cape Henlopen is a half-mile distant. Congress at its last session made provisional transfer to the Marine-Hospital Service of the iron pier near the reservation line, and with this iron pier is a land reservation of 500 feet on each side of the pier end and about the same depth. Between these two reservations is a space of about 900 feet of land, which belongs to the State. This should be secured to the Government, and doubtless at the next session of the legislature this can be done, and there will then be a continuous water front to the quarantine reservation of 3,400 feet. The land is all sand—no soil at all.

*The pier, buildings, etc.*—As one approaches from Lewes, the first feature of the quarantine met with is the iron pier. This has a length of 1,701 feet, of which the inner 1,155 feet has a width of 21 feet, and the outer 546 feet a width of 42 feet. It has a wooden superstructure. It has been completed about seven years, being begun in 1871 by the Engineer Department of the Army. The original appropriation, July 15, 1870, was \$225,000, and between 1874 and 1882 additional appropriations were made whereby the aggregate sum was increased to \$368,500 (see report of Dr. W. P. Orr, November 4, 1889). Repairs made necessary by injuries from derelict vessels

have just been completed at a cost of about \$8,000. Seventeen iron piles were replaced and creosoted fender piles placed the entire length of the pier on each side. An iron track is laid in the eastern side of the inner 1,155 feet with three switches at the point where the pier widens. The act making the original appropriation, July 15, 1870, provided, "that it \* \* \* shall be lawful for \* \* \* the Junction and Breakwater Railroad \* \* \* to extend their railroad upon and over the said pier and freely to use the said pier in connection with the said road subject to such regulations and charges for maintenance and repairs as the Secretary of War may adopt." The Junction and Breakwater Railroad has been sold to the Pennsylvania Railroad, which therefore has this franchise, whatever it may be worth. It is evident that the railroad company, having never extended a track to the pier, have no use for it, and I recommend that an act be prepared requesting Congress to repeal this much of the original act.

Toward the end of the pier is an iron tank, which holds 800 gallons of water, connected with an iron pipe running to the shore and supplied by a hand pump.

The depth of water at the end of the pier is 25 feet, and vessels drawing 20 feet could not be moored on either side more than 400 or 500 feet from the end as the water shoals so rapidly.

Surgeon's residence: Leaving the pier, the first building is the new surgeon's house just completed, located about 1,000 feet distant, built of brick, two stories and a basement, having five rooms on each floor, and two of the rooms of the basement finished like the rooms above. The house is well built, commodious, and attractive. The sand has blown away from the foundations, and considerable filling in of earth is necessary. The earth can be obtained a short distance back of the reservation.

The boat house (cost, \$385) is a short distance from the surgeon's residence, and 100 feet from the water's edge. It is 48 feet long and 18 wide, and holds the whale boat which is used in transporting dunnage and infected articles from vessels for the purpose of burning them. There is a storeroom in this building where sulphur and coarse articles are kept.

The hospital (total cost about \$2,500) has a front of 60 feet with a veranda on the entire front. It faces the sea, as do all the buildings. It is 30 feet deep, and is divided on the first floor into a ward holding twelve beds (about 38 or 40 by 30 feet), plastered throughout, a hall and office and dining room. Overhead a second ward will hold eight beds, and there is a room divided by a partition into a sleeping and a store room. A short porch is in the rear (roofed) of the dining room, and this has been connected with a summer kitchen which has been added. There is a small coal house and a stable. The second hospital is about 600 feet east of the first one, and was built in 1888 especially for the reception of smallpox patients.

The building is one story, 50 by 30 feet, and contains a ward for twelve patients, a kitchen, and an attendant's room. It cost \$1,700. The flagstaff cost \$120, that being the price usually paid by the Life-Saving Service.

At the rear of the reservation is a neatly laid out burying ground, surrounded by a substantial fence made of cedar posts and galvanized iron pipe, the cost of which was about \$225.

*Needs of the station.*—The steamer *Pasteur*, assigned to this station, which at the present writing is at Wilmington, supplies the necessary sulphur fumigating apparatus and bichloride solution spray. This vessel also is used for boarding, but is not well adapted for this use, being of too light draft. A substantial seaworthy boat drawing not less than 9 or 10 feet of water is necessary for the thorough equipment of the station in view of the service expected of it. The steam disinfecting chambers should be placed at the end or near it of the iron pier, and a large warehouse should be erected on the shore connected with the pier by a railroad track. It is not deemed advisable to recommend more hospital facilities at the present time, but a number of tents should be stored here to meet any emergency.

A large two-story building, known as the Baker Building, stands on the line of



the pier reservation, and in an emergency might be purchased for use as a barracks or hospital. This is described in a letter from Surg. Stoner, August, 1884, when the purchase of this house was under consideration.

A warehouse, steam disinfecting chambers, and a deep-draft steamer, then, are all that is required at the present time for the full equipment of this station.

Very respectfully, yours,

WALTER WYMAN,  
*Surgeon, U. S. Marine Hospital Service.*

To the SUPERVISING SURGEON-GENERAL,  
*U. S. Marine Hospital Service, Washington, D. C.*

CAPE CHARLES QUARANTINE STATION, FISHERMAN ISLAND, OFF  
CAPE CHARLES, VIRGINIA.

[Post-office address, Fort Monroe, Va.]

The number of vessels hailed and inspected at this station between October 16, 1890, and October 16, 1891, was 837; 12 vessels were detained in quarantine and disinfected. Seven cases of smallpox taken from vessels were treated on Fisherman Island.

There are two quarantine steamers at this station, one, the *Woodworth*, used as a boarding steamer, the other, the *Robert Koch*, supplied with a sulphur furnace, pumps, and tanks for germicidal solutions, and used only for the disinfection of vessels. The steamer *Woodworth*, which has been in commission for a number of years, was originally built as an ambulance steamer for use in New York Harbor. She now requires extensive repairs, and should be sold, as she is not adequate for the requirements of the service. A new boarding steamer, small, staunch, of deep draft, and a good sea boat, is required. The station is under the command of a regular officer of the service.

The complement of officers and crew of both steamers and the station on Fisherman Island is 11.

By reason of legal technicalities the formal transfer of Fisherman Island, near Cape Charles, has not been made to this service, the service paying a rent therefor. On this account the permanent plant has not been erected; but there is a good house on the island, and in case of emergency necessary material is at hand for accomplishing the required work. Thus, during the past season a vessel infected with smallpox arriving at the Cape, the patients were removed and treated in tents on the island, the tents afterward being destroyed by fire.

SOUTH ATLANTIC QUARANTINE STATION, BLACKBEARD ISLAND, SA-  
PELO SOUND, GEORGIA.

[Post-office address, via Doboy, Ga.]

From October 15, 1890, to October 10, 1891, there were twenty-eight vessels inspected, all of which were detained in quarantine and disinfected. All or nearly all vessels arriving at this station are either infected vessels or vessels coming from infected ports and require thor-

ough disinfection. Nearly all vessels have been unballasted prior to disinfection and the work has been well and efficiently performed, no contagious diseases having developed aboard any vessel after discharge from this station. One case of yellow fever taken from a vessel was treated at the lazaretto. The station is commanded by a regular officer of the service, who has assigned to him for duty an acting assistant surgeon, who performs also the duty of steward. The complement of employés for the station is 10.

An appropriation of \$20,000 was made by Congress at its last session, and will be used during the coming winter in the construction of an additional wharf, steam disinfecting apparatus, etc. To the present time in every required case, disinfection of clothing has been thoroughly performed by the officer in command by means of boiling, by immersion in bichloride of mercury solution, and by the use of steam generated in the boilers of the vessels undergoing disinfection.

#### REPORT OF INSPECTION OF THE SOUTH ATLANTIC QUARANTINE.

SOUTH ATLANTIC QUARANTINE,  
*Blackbeard Island, Sapelo Sound, Georgia, November 3, 1890.*

SIR: I have the honor to report that in accordance with Department orders dated October 14, 1890, I arrived at this station Friday noon, October 31, and was received by Passed Assistant Surgeon J. H. White, in command. The attendants were mustered all in uniform excepting one, a new employé, and all were present or accounted for. The various buildings at the south end of the island were examined, later the new hospital recently erected nearer to the beach, the watchman's house at the north end, the new wharf warehouse, and tanks for bichloride solution, and the various small boats, barges, etc., belonging to the station. I found the records well kept, the quarters, offices, etc., neat and orderly, and an excellent state of discipline.

Within the two years and five months of Passed Assistant Surg. White's service at this station the following-named buildings have been erected under his immediate superintendence, the material being purchased by himself after receiving bids under advertisement, all the labor being performed by the quarantine employés, and the plans being drawn by Dr. White himself, excepting the plans for the hospital for infectious diseases, which were copied, with slight variation from the plans for the San Francisco station as published in the annual report Marine Hospital Service, 1889.

Besides a rough building erected by Dr. White for the use of the watchman at the north end, the following are at the south end:

*Surgeon's quarters.*—Single story six-room frame cottage, surrounded by verandas, with kitchen and pantry attached, containing bathroom with hot and cold water.

*Steward's quarters.*—Single story frame, verandas on two sides, containing two rooms and large hall, bathroom, and a large kitchen attached.

*Hospital building.*—Thirty-eight feet wide by 88 long over all, with verandas on all sides, two wards, and a hallway.

*Attendants' quarters.*—Frame building, 70 by 14 feet, containing five rooms (14 by 14 feet), with a building at the rear 14 by 14, containing water closets and bath tubs.

*Attendants' kitchen.*—Attached to attendants' dining room.

*Executive building.*—To the two rooms of this building three have been added, with a total area of 14 by 28 feet. Sand has been dug away and framework put in for an under story to this building.



Of the above buildings four are weatherboarded, finished, and painted, viz, the surgeon's and steward's quarters, the hospital, and the attendants' bath building. All the others are of rough board and whitewashed.

*Water supply and drainage, south end.*—In January, 1889, after a month's labor by the contractors, water was struck in an artesian well 378 feet deep, 4 inches in diameter, reduced at the top to 3 inches. The contract price was \$975, the contractors agreeing to find water that would rise 30 feet. It rises 50 feet and flows at the rate of 545,000 gallons a day. The water is of excellent quality and is distributed into all the various buildings excepting the hospital, which is situated at a distance of about half a mile.

The sewerage system consists of two sewers of glazed terra cotta 6 by 4 inches in diameter, with proper fall and standpipe at exit, emptying into the river. This also has been constructed by the quarantine attendants.

*Blackbeard Island* may be described as a right-angled triangle, its perpendicular being a north and south line of 7 miles length on the Atlantic, its base a line of 3 miles due west from the northern end of the perpendicular on Sapelo Sound, and the hypotenuse being formed by Blackbeard River.

The boarding of vessels, discharge of ballast, fumigating, etc., are all done at the northern end of the island; the residence of the quarantine officer and employes and the lazaretto are all at the southern point of the island, at least 8 miles distant. The reason for this peculiarity of arrangement is that at the northern end, where only good anchorage may be had, there is so little ground for building and the location is so unhealthy that permanent residence there is out of the question. The island is full of swamps and malarious, and the prevailing winds being from the south and southeast in the summer time passing over the swamps before reaching the north end, render this end dangerous to health. All vessels, however, entering Sapelo Sound may be clearly seen from the south end an hour before entering, excepting light-draft vessels from the north hugging the shore of St. Catharines Island immediately to the north, but these are generally American coasters.

When the quarantine officer observes a vessel approaching quarantine, he has two ways of reaching the boarding station, viz, by driving around on the beach, which may be done only at low water, or by boating on the Blackbeard River, which can at present be done only at high water. Patients taken from vessels must be taken to hospital by one or the other of these routes, also.

At the north end of the island there is a rough board house of two rooms for the watchman, who is kept on duty here continuously.

About 250 feet from shore at high water is a boat-house 28 by 44 feet (hole for hoisting boats 30 by 48), erected on piling and connected with the shore by a gangway. There is also a wharf 100 feet by 25, 1,600 feet from the shore, the connecting gangway not yet provided for—16 feet at low water, 22 feet at high water, wharf 8 feet above high water. This wharf contains a storehouse 30 by 20, two tanks erected on a platform 20 feet above the wharf, each with a capacity of 9,000 gallons, for bichloride solution. A hoisting engine with winches has been ordered, and will be placed on this wharf for discharging ballast. A double brass cylinder force pump is in position for filling the tanks with sea water.

The wharf, with its storehouse, bichloride tanks, and the boat house, with 60 feet of the gangway thereto, were erected under contract made by the Supervising Architect of the Treasury, at a total cost of \$18,417.90.

The construction of the wharf is with a special object, viz, the ultimate creation of a wharf made of stone and cement. The piles are driven close to one another, so that no ballast stone larger than a man's fist can go through. Ships' ballast (stone) is dumped into the crib thus made, and in accordance with the suggestion of Dr. White, sand and cement will be mixed with the stone ballast as it is thrown against the piling from the inside, and in time a solid wharf of stone and cement will take the place of the structure in piles.

*Boats, conveyances, etc.*—Before describing the needs of the station, mention should be made of the facilities for conveyance, etc. There are two horses and an ambulance capable of carrying two patients with difficulty. There is also a cheap wagon with spring seat, not available for ambulance purposes.

At the north end there is a receiving scow for freight, anchored at some distance from shore, in 10 feet of water at low tide, to obviate the necessity of supply steamers touching at the quarantine wharf. It is nearly half a mile from the wharf, and enables the vessel bringing freight and supplies to deliver same without violating or running any risk from quarantine.

At the north end also is a batteau which was built at the station under direction of Dr. White.

At the south end there are two small boats (row boats) which are worn out and should be replaced without delay. The boats now being built by Burgess will take their place.

A plain 25-foot center-board sailboat, 7½-foot beam, used occasionally for bringing freight from the north end. A lighter, 38 by 13, used for transferring horse and wagon across the river to Sapelo Island, and for bringing freight from the north end.

*Needs of the station.*—To enable the boarding officer to reach the north end promptly and in bad weather, also to tow freight and to transfer the sick to hospital, a steam or naphthalaunch, 35 feet in length (drawing approximately 3 feet), is indispensable and should be provided as soon as possible. The sailboat now on hand could be readily converted into an ambulance float, which could be towed by the launch.

Blackbeard River, at the south end of which the quarters and the hospital are located, and at the north end (or near it) the wharf, etc., is navigable throughout its length, with the exception of 100 yards of a connecting cut, which was dredged out several years ago by the then sanitary inspector, Dr. William H. Elliot. At high water there is from 6 to 8 feet of water; at low water about 6 inches.

This should be dredged out, which can be done without very great expense, and it could readily be kept from filling by the daily passage of the launch.

The present wharf is well adapted for the discharge of ballast. Frequently, however, several vessels are on hand at the same time, and an additional wharf of the same size 75 feet to the westward should be constructed, connected to the present one by a tramway.

Still another wharf should be erected to the east of the present one for holding the steam disinfecting cylinders and possibly the stationary sulphur furnace. A gangway should be built from these wharves to the shore, to permit the transfer by trucks of sand ballast and for general purposes.

Permanent quarters for the station employes who are obliged to remain at the north end, should be built on the wharf holding the steam cylinders. A residence, both on account of health and comfort, is preferable on the wharf to one on the shore.

For the temporary housing, however, of a crew of a vessel undergoing disinfection a small house should be erected on the neighboring shore.

There is no water at the north end excepting rain water caught from the roofs. It would be a great advantage to the station to have an artesian well on the wharf to supply vessels with fresh water. A cholera vessel would especially require a fresh-water supply. As suggested by Dr. White it would be absolutely necessary to empty and disinfect the water tanks of such a vessel.

At the south end there is needed an adjunct building for kitchen, dining room, nurses' room, medicines, etc., connected with the lazaretto; also cisterns; also some system for disposal of excreta, preferably water-closets and a cemented cesspool capable of disinfection and periodic discharge.

If preferred, the water supply to the lazaretto may be sent from the artesian well



through a 2-inch black iron pipe. The estimated distance is 2,640 feet, and cost of pipe 10 cents per foot, estimated. The labor of laying same can be done by the attendants.

A small hospital building for noncontagious cases should be erected within five minutes' walk of the excluded building, the table to be supplied from the attendants' kitchen.

A telephone line was formerly extended from one end of the island to the other, but on account of the inefficiency of the instruments the service was discontinued June, 1888, and the instruments returned. I regard it as very important to have these instruments supplied, even though a new wire should have to be laid between the stations.

The importance of this station is evident at a glance. It is the receiving station for infected vessels from Jacksonville on the south, to Charleston, S. C. It is also the regular station for all vessels that come into Sapelo Sound for timber cargoes, Sapelo Sound being the deep-water entrance to the port of Darien, the latter being an important timber port. The vessels coming here, too, are from the dangerous localities, viz, Havana, Rio Para, Bahia, and Panama.

Savannah and Charleston send their infected vessels to this station, and the smaller cities and towns send the suspected craft as well. The station should, therefore, be equipped to meet unusual emergencies and at the same time to perform the usual quarantine service with facility and dispatch.

Very respectfully yours,

WALTER WYMAN,  
*Surgeon U. S. Marine Hospital Service.*

To the SUPERVISING SURGEON-GENERAL,  
*U. S. Marine Hospital Service, Washington, D. C.*

KEY WEST QUARANTINE STATION, DRY TORTUGAS, FLORIDA.

[Post-office address, via Key West, Fla.]

Although the equipment of this station could not be completed during the present quarantine season, five vessels have been received there for inspection, four of which have been disinfected. Assistant Surgeon H. D. Geddings is in command, and in addition to his quarantine duties is engaged in the conduct of the bacteriological laboratory, established at this station for the special purpose of investigating the cause of yellow fever. The officers and crew of the steamer *Dagmar*, connected with this station, together with the hospital attendants, number twelve. A new iron pier is now in course of construction, but pending its completion a large scow has been constructed, upon which the steam disinfecting apparatus and sulphur fumigating furnace have been built, so that this station, which heretofore has not been put to great service in the quarantine of ships, will be in readiness within a month, and it is believed will be recognized by the mercantile interests as a valuable adjunct to the sanitary system of the South during the quarantine season.

Its remoteness, instead of being an objection, is believed to be a recommendation, and the station is, moreover, within the line of travel of vessels coming from South America, and but slightly out of line of travel of vessels from Cuba. Upon the completion of the new iron pier the steam disinfecting chambers will be transferred from the scow to the pier.

In July last purchase was made for this station of the steamer *Dagmar*, for \$25,000, this vessel being a staunch, swift steamer, 110 feet in length, well calculated for deep-sea duty in boarding vessels, and for towing such as may be required to be towed into the quarantine anchorage. She is used also in conveying supplies from Key West to the Dry Tortugas, and has proven in every way a satisfactory purchase.

REPORT OF INSPECTION OF THE KEY WEST QUARANTINE (DRY TORTUGAS).

[NOTE.—Since the following report was written the steamer and disinfecting apparatus called for have been provided and the wharf is in process of construction.]

KEY WEST QUARANTINE STATION,  
*Dry Tortugas, November 20, 1890.*

SIR: I have the honor to report that I arrived at the Dry Tortugas on the revenue steamer *Forward* this morning; was received by Assistant Surg. Geddings; mustered the few attendants attached to the station, five in number; examined the books and records and inspected the attendants' quarters; was shown also the officers' quarters, and visited the portions of the fort and surroundings that are utilized in the quarantine establishment. I also condemned a quantity of unserviceable property. The station appeared to be in good order.

A section of the fort has been put in partial repair, the roof mended and painted, etc., but the greater part of this large structure, which cost, I am told, \$15,000,000, shows decay of its perishable material. The moat is filled with water, which must be stagnant, as it has no means of outflow, the cut made for this purpose having filled up with sand. Dr. Geddings states he has had the sand cleared away, but it filled up again at once.

A matter of importance is the condition of the sewer. This runs back of the officers' quarters from sea to sea. The outlets are some distance from shore and deep in the water. At least they are supposed to be, for Dr. Geddings has never been able to locate them. He knows, however, that both ends are clogged up and the sewer is gradually filling, and it is only a matter of time when it will become unendurable. This condition at a quarantine station is unsafe. I would recommend that an inquiry be made, or request for the plan of the Engineer Department of the Army, and when the exact construction of the sewer is understood a remedy can be better devised than now.

Within the inclosure of the fort line, besides the quarantine officers and attendants, are the sergeant (without family) who guards the property belonging to the Army, and to whom are reserved three small one-story brick buildings and one room in the main building, and the light-house keeper and his family. These latter are in a building near the sally port.

Bird Key, on which it was proposed at first to place the laboratory and lazaretto, Dr. Geddings states has been used as a burial ground during various yellow-fever epidemics and appears to be unsuited for occupancy.

The laboratory appears to be well equipped and well arranged, and I was shown a few culture tubes showing growths from inoculations from blood and various tissues of yellow-fever patients.

I believe that a monthly report of the bacteriological work done in the laboratory would be of interest and furnish occasional material for the Weekly Abstract.

The gas machine furnished for use in the laboratory gives perfect satisfaction, but the Pictet ice machine is unsatisfactory. The manufacturers have never sent instructions as to its use, though requested to do so. Dr. Geddings was requested to make a special report upon this matter.



*Boats.*—There are five boats on hand, viz: two whaleboats, two 14-foot Whitehall boats, and one 17-foot Whitehall. One whaleboat has been rigged with sails by the attendants.

Thus far there have been but seven vessels, all told, in quarantine at this station. Of this number but one was in ballast. The others were without ballast or cargo. No ballast is obtainable here; but American sailing vessels are now built so that they can go from Havana to the coast of United States without ballast.

At present Dr. Geddings uses the pot method of fumigation. He boards vessels from a whaleboat or small boat, carrying with him his disinfecting material. His solution of bichloride of mercury is always 1 to 500, and he carries a cask in his small boat in which to mix it. Mattresses and clothing that can not be properly fumigated with sulphur dioxide are dipped in this solution. A rotary engine and pump have been ordered for the purpose of throwing the solution.

*Needs of the station.*—First should be mentioned a good deep-draft of steamer for boarding purposes, and for towing and for communication with Key West. She should be built for sea-going only.

Second, a large wharf at least 120 feet long should be built at a point nearly opposite the sally port and a short distance from the present light-house wharf. The water here is 20 to 30 feet deep but a few feet off shore. This wharf should hold the steam disinfecting chambers and the sulphur furnace at one end, and at the other hoisting apparatus, etc., for discharging ballast.

The hospital for the sick with non-contagious diseases is already provided for in the fort buildings. Suspicious cases should be taken within the fort inclosure, but be detained in hospital tents in the area to the left of the sally port as one enters. Two tents are on hand and permanent floors are to be constructed. This locality is the one most remote from the several quarters and is yet accessible.

The location of the lazaretto is a matter of great importance. A sand spit of considerable area is at the northwestern corner of the island, diametrically opposite to the present light-house wharf and the location of the proposed wharf where suspected vessels will be treated. On this sand spit there is ample room for a lazaretto, and I am told the prevailing winds pass over it to the sea and not in toward the fort. Access to this spot is now only possible by walking half the circumference of the outer wall of the moat, starting from the sally port; but a convenient mode of approaching it from the surgeon's quarters could be made by a small ponton bridge across the moat, with steps at each end, access from the fort being obtained through one of the gun openings. A lazaretto at this point would be entirely separated and out of sight from the wharf.

It is quite desirable that the wharf and the buoy shed, still in the possession of the Light-House Establishment, should come under the control of the Marine Hospital Service. The buoy shed is 100 feet long and could be divided into three sections, one for coal, one for storage, and one for guards, watchmen, etc. There is connected with it a large cistern, always full of water, with pipes extending to the head of the wharf, supplying water to vessels. The sand spit holding this building is very necessary for quarantine purposes.

Among the other requirements of this station, if it is to take the position expected of it as a quarantine, and there is every reason to believe it will, should be mentioned a cable to Key West. It has been pointed out to me that this is the most southern point in the United States; that it is near the center of storms and would be valuable as a signal station. It is also in the direct line of commerce and could be made a point of departure, and incoming vessels could be reported. The advantage to the quarantine of a cable can be seen at a glance. I believe a cable could be laid at a cost of \$30,000 or less.

The possibilities in the matter of usefulness of this station are very great. So far from being out of the way as I have heard asserted, it is almost in the direct track of commerce. Vessels from the south pass within sight of the island, the "Logger-head light" being a guide.

I myself saw two or three vessels passing at a distance, and Dr. Geddings states he has counted as many as eight steamers in sight at one time. Steamships from South America to Charlotte Harbor, Florida, will probably stop here rather than go so much further north to Mullet Key to perform their quarantine. Captains engaged in trade with Apalachicola prefer this station to Chandeleur.

It has been suggested that vessels from Havana to Floridian ports could make use of the Tortugas station by performing quarantine here, after which the time required to reach port from Tortugas could be counted in the detention period imposed by the Florida board of health.

It is expected that next season a large number of vessels will seek this quarantine, particularly if it becomes known that it is to be permanently established with complete plant.

I have the honor to remain, very respectfully,

WALTER WYMAN,  
*Surgeon U. S. Marine Hospital Service.*

To the SUPERVISING SURGEON-GENERAL,  
*U. S. Marine Hospital Service, Washington, D. C.*

GULF QUARANTINE STATION, CHANDELEUR ISLAND, GULF OF MEXICO.

[Post-office address via Biloxi, Miss. For diagram see Annual Report, 1889, p. 111.]

Between October 15, 1890, and October 8, 1891, there were 52 vessels held and inspected, of which number 46 were detained in quarantine and disinfected. Two vessels from Rio de Janeiro were wrecked on the island, the crews saved and given relief at the station. Twelve cases of yellow fever treated at the lazaretto, including the fatal case of Assistant Surgeon J. F. Groenevelt. The station was under the command of Passed Assistant Surg. H. R. Carter until it was necessary to relieve him on account of sickness, and on July 1, Surgeon R. D. Murray was ordered to assume charge. At the same time an acting assistant surgeon, Dr. Pelaez, was employed to assist him. Besides the two medical officers, there are included in the working force at this station, 1 hospital steward, 4 hospital attendants, and 8 subordinate officers and employés on the steamer *Welch*.

An appropriation of \$13,000 for an additional wharf and new steam-disinfecting chambers made by the last Congress is available, and plans are now in course of preparation by the Supervising Architect of the Treasury. It is expected that the work will be carried to completion during the coming winter. A further appropriation has been included in the estimates for still greater extension of wharf facilities and for dredging a channel through the reef to enable the quarantine steamer to pass from the station to the anchorage.

The steam chamber at present in use at this station has proven efficient; but, as will be seen from the subjoined inspection report, a more permanent plant is desirable, while the present chamber, which is on a float, can be used in the disinfection of smaller vessels anchored within the shallower waters of the anchorage. The quarantine steamer *Welch* has been in continuous service at this station through the year, supplying steam to the disinfecting chamber and carrying supplies from the



transfer float at Ship Island to the station. This vessel also is provided with a sulphur furnace and tanks for germicidal solutions. Certain repairs and alterations to her machinery are required to increase her power for towing. A new naphtha launch for the use of the boarding officers has been supplied to the station during the past summer. The work of this station has proved to be most efficient, and so far as known not a single case of contagious or infectious disease developed on board of any one of the large number of badly infected vessels treated at this station after pratique had been granted.

REPORT OF INSPECTION OF THE GULF QUARANTINE STATION, CHANDELEUR ISLAND.

BILOXI, MISS., *November, 14, 1890.*

SIR: I have the honor to report that in accordance with Department letter of October 14 I arrived at Biloxi in the forenoon Monday, the 10th, and was unable that day to procure conveyance to Chandeleur but made arrangements for an early start (6 o'clock) in a sailboat the following, Tuesday, morning. When 12 miles out met Passed Assistant Surgeon Carter, who was coming to Biloxi with the sloop *Annie* to which vessel I transferred myself and she was put about. We reached Chandeleur a little after dark.

The following day, Wednesday, I inspected the buildings, examined the records, examined the lagoon and the bar and the disinfection float anchored on the outside and condemned a quantity of unserviceable property.

I found that good order prevailed and good discipline. The steward and attendants presented themselves in uniform. The records were found properly kept.

The following morning, Thursday, Dr. Carter and myself with two boatmen started at 7:30 o'clock in the Sloop *Annie* and arrived at Biloxi at 9:30 p. m.

While waiting in Biloxi on Monday I called in Dr. Champlin, the quarantine officer of the Mississippi State board of health, who has maintained a quarantine at Ship Island during the past season. The substance of the information derived from him will be included in this report in its appropriate place.

*Chandeleur Island.*—Chandeleur Island is due south from Biloxi, Miss., and between 26 and 27 miles distant in a straight line. Ship Island is almost midway between the two points named. Chandeleur Island is 34 miles in length, running north and south, and extremely narrow, in many places being hardly more than a stone's throw in width. It is little else than a sand reef with slight elevation above the waters of the Gulf of Mexico and has but little, and that a stunted, vegetation. There are about 250 cattle on the island, belonging to a private individual in Biloxi, which Dr. Carter, to whom I am indebted for most of these facts, thinks are injurious to the island, as they lop off the tops of the bushes and short grass which would otherwise better hold the sand and earth and prevent the wearing away of the island.

These cattle, moreover, are wild and a source of danger to the families of the station when they seek exercise and recreation. The island is in the shape of a long bow slightly bent. Carrying out the figure, the string of the bow is a reef of very hard sand which is never above water at ordinary tide yet serves to completely protect the lagoon which it makes. This is on the west side of the island. On the east side of course are the breakers and the open sea. At the northern extremity, or "North Point," is the Chandeleur light-house, and one-half mile south of this is the northern boundary of the quarantine reservation marked on the shore by a stake carrying a yellow flag, and in the water by yellow buoys with flags. The southern boundary of the reservation is undefined unless it includes the whole of the island or islands, the circular of the Secretary of the Treasury setting apart the island reading as follows: "As much of Chandeleur Island and adjacent waters as may be

needed for quarantine purposes." But the southern boundary of the portion used in actual quarantine is about 11 or 12 miles south of the North Point, where begin a series of keys, "North Keys" and others, stretching in a westerly direction toward the Louisiana Marsh. The island, however, stretches still further south, what is known as Errol or Grand Gosier Island being a continuation of Chandeleur and included in the 34 miles length.

Outside of the reef the waters are almost an open roadstead, protected from the east and direct south and north winds, however, by the island. Small vessels object to anchoring there and are taken within the reef in the lagoon. The water on the outside is deep, averaging  $4\frac{1}{2}$  fathoms, and there is good holding ground.

There are three principal channels through the reef or bar into the lagoon, the most northerly being directly opposite the quarantine buildings. Through this, the whaleboat can pass at any time, the sloop *Annie*, drawing 3 feet, at a good tide, but it is not deep enough for the steamer. Its depth has been increased by the deposit of ballast on its northern side. It is about 60 feet wide. At this point the reef is 1 mile from the buildings.

The second channel is  $3\frac{3}{4}$  miles further south. Here the sloop can pass at all times, save at the lowest tides. This channel was found by Dr. Carter, while sounding.

The third or lowest channel is 3 or  $3\frac{1}{2}$  miles south of the middle one, or 7 miles below the buildings. Through this, the steamer *Welch* passes to get into the lagoon. Small schooners can also get through, but as a rule they go a mile further to the south and come around what is practically the end of the reef. This end of the lagoon is known as "Schooner Harbor." Inside the reef there is a 5-foot channel close to it as far north as the first inlet.

A schooner drawing 6 feet has been taken on a good tide to the station, but the steamer \* can generally go up only 2 or 3 miles. The water in the lagoon grows shallow toward the shore, and terminates in marshes and bayous. The buildings are in the marshes, on piles. A whaleboat can be rowed to the steward's residence at any time, but the water under the surgeon's residence is too shallow to float a heavy boat. The lazaretto is on a bayou one-half mile south of the other buildings, and generally a yawl or whaleboat can be rowed there, but not always; sometimes a skiff must be used. One corner of the surgeon's residence rests on dry land about 30 by 100 feet in area, the only dry land on the premises.

*Buildings.*—Beginning at the north the buildings are arranged as follows: First, the boatmen's quarters and the boat house, built on the same platform. Six hundred feet further in is the executive building, and immediately adjacent, the hospital for noncontagious cases. Part of the executive building is used by the steward for quarters. There is no connection by gangway between these buildings and the boatmen's quarters, but 236 feet to the south of the executive building and connected by a gangway is the surgeon's residence, built like the rest on piles rising out of the marsh, but cornering on a shell bank which holds also a storehouse, and a rough shed for coal, lumber, etc.

The lazaretto, one-half or three-fourths of a mile removed to the southward, is an exact duplicate of the executive building and hospital. The executive portion, however, is fitted up comfortably for the use of a lazaretto physician. It is now unoccupied.

All these buildings are well supplied with water by cisterns of large capacity located on the corners of the verandas by which they are all surrounded. Some new braces are needed under the buildings to replace those that are wormed, and all of them should be repainted in order to keep them in their present excellent condition.

*Steamer, floats and barges, small boats.*—The fumigation steamer *Welch* I did not see as she had been laid up in fresh water in the Pascagoula River at Scranton. Dr.

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\* The steamer draws 5 feet.



Carter has made good use of the sulphur furnace and the bichloride tanks and pump on this steamer, but states that the reverberatory sulphur furnace acts better since he has removed every alternate pan. There is now less volatilization of the sulphur, *i. e.*, less deposit of the flowers of sulphur in the conveying pipes and in ships' holds. In using this furnace on a steamer alongside another vessel, I found at other stations much difficulty has been experienced in securing proper pliability in the pipe connections; the asbestos hose, if wet, easily rots and tears, and being exceedingly expensive should be discarded. Dr. Carter recommends the suction hose in common use upon a wrecking boat—a stiff rubber hose 8 to 12 inches in diameter lined on the inside with brass wire, provided with an expansion joint to connect with the galvanized iron pipe on the steamer. At Charleston the connecting asbestos piping or hose is held up between the vessel and the wharf by means of a pulley rope attached to a ringbolt in the asbestos piping itself and swung from an overhead yardarm.

Floats: These are three in number, one holding the steam disinfecting chamber; one for the transfer of mails and supplies; one for ballast.

The last two were also in the Pascagoula River, being laid up there temporarily, the quarantine season proper being over.

The steam chamber in use was constructed by Passed Assistant Surgeon Carter. The steamer tows the flat to the vessel in the anchorage, the flat is made fast to the vessel, and steam supplied to the chamber from the steamer's boilers. The chamber is 20 feet long, 8 feet wide,  $5\frac{1}{2}$  high; is made of wood lined with leaded sheet. There are four thicknesses or layers of wood with an air space and a lining of felt between the layers. Steam is introduced at 75 to 90 pounds pressure and is given free vent. The clothes are so hot on removal that they dry immediately. (The object of dry heat in other cylinders being to prevent condensation.) Rubber hose is used in conducting steam into the chamber. New rubber hose when used for the first time should have steam passed through it for washing it out, otherwise clothing in the chamber will be spotted. The temperature in mattresses and pillows in this chamber has been found to be  $222^{\circ}$  and  $224^{\circ}$  F. and escaping steam averages  $218^{\circ}$ .

The small boats on hand are two whaleboats, one good yawl, one small yawl, one skiff, and several small boats of little value that have drifted ashore. The sloop *Annie*, with her dingey, must also be mentioned.

*Needs of the station.*—For the treatment of vessels at this station arrangements must be made for, first, the discharge of ballast; second, sulphur fumigation; third, washing with solution of bichloride of mercury; fourth, steam disinfection of clothing, mattresses, etc.

For the first, second, and third of the above requirements, in my opinion, there should be erected outside the bar in water of sufficient depth a pierhead or crib wharf without connection with the shore. A duplicate of that which has recently been erected at the South Atlantic Station is desirable; this pierhead to hold the bichloride tanks, a fumigation furnace, and arrangements for discharge of ballast; a small warehouse also to be erected upon it.

For the fourth requirement I concur in the recommendation of Passed Assistant Surg. Carter, in his letter of August 8, 1890, and believe that a large hulk should be securely anchored near the pierhead mentioned, so that a vessel could be moved easily from one to the other. The steam disinfecting chambers should be on this hulk.

It is advisable to divide the necessary labor in cleaning and fumigating a vessel between two "loci," so that two or more may be under treatment at the same time. The hulk should also be used for the storage of coal, for the quarters of the crew of a vessel undergoing disinfection, with special apartments for the wife or family of the captain; and, finally, should have a sick bay for the temporary detention of patients.

At present the steamer has to go to Ship Island, out of quarantine, for coal; there is no provision for housing of a vessel's crew, and the captain's wife and family

are entertained at the residence of the quarantine officer, the latter being subjected by the present condition of affairs to an enforced hospitality.

The above equipment fully provides for vessels which lie outside the bar. It should be remembered now that small vessels can not anchor there or that their masters at least consider it unsafe, and they therefore come within the bar, into the lagoon. For the treatment of these vessels the fumigation furnace, the bichloride tanks and pumps, and the steam are already provided for in the steamer *Welch*. The steam chamber built by Dr. Carter for use in connection with the *Welch* will answer for these vessels. Thus practically there will be a double equipment, the lesser already provided, the greater absolutely necessary if this station is to take the position and do the work which is contemplated for it.

The *Welch*, moreover, furnishes the necessary steam communication between this remote island and Ship Island and the mainland.

Another need of the station is a small light-draft naphtha launch. During the quarantine season there are many days that are sultry and calm. Several vessels are frequently in the anchorage at one time, and considering their distance from the buildings, the distance also of the lazaretto, the exposure entailed upon the quarantine officer and his two oarsmen in making his necessary visits is very considerable. In smooth weather the launch with the canopy could always be used and the service of one man instead of two would be sufficient. In rough weather the whaleboat would necessarily be used, as now.

Dredging is also required in the North Channel into the lagoon directly opposite the buildings, and a depth should be acquired sufficient to admit the *Welch* and small vessels at all tides.

Mooring buoys for the steamer are required, one outside, the other within the bar. Dr. Carter is daily expecting from New Orleans the two anchors, each weighing 600 pounds, which belonged to the *Day Dream*, and which the commanding officer of the Light-House Establishment of this district courteously consented to transport to the station on the light-house tender. These anchors will be placed in proper position, and if mooring buoys are attached to them a great deal of labor in casting and raising anchor will be saved to the steamer *Welch*.

Finally, a new shed or outhouse should be built on the shell bank at the rear of the surgeon's residence to replace the one which is of temporary character and worthless. This outhouse is necessary for holding fuel and general storage.

*Chandeleur in relation to Ship Island.*—The transfer of the United States quarantine establishment from Ship Island to Chandeleur was made March 7, 1889, under the immediate supervision of Dr. Carter. The selection of Chandeleur was made by a board composed of Surgeon W. H. A. Hutton, Marine Hospital Service; Capt. Parker, U. S. Revenue Marine Service, and Passed Assistant Surgeon H. R. Carter, Marine Hospital Service, assisted by Dr. C. P. Wilkinson, representing the Louisiana board of health, and Dr. Maybin, of Biloxi, of the Mississippi State board of health. Resolutions were passed by the Jackson (Miss.) County board of supervisors recommending a change of site from Ship Island, where the National Board of Health in 1880 had established the station.

Ship Island, commercially speaking, is a part of the main, for vessels coming to Biloxi and neighboring ports for cargoes of lumber are obliged to ship the lumber at Ship Island, receiving it from lighters or rafts towed to the latter place. The vessels are unable to reach the ports proper on account of shallow water.

The Mississippi State board of health has maintained a quarantine here during the past season, conducted by Dr. Champlin, who has not only inspected but fumigated certain vessels, charging \$5 for inspection and \$10 for disinfection.

Thus I am informed one large steamer from Vera Cruz was disinfected by Dr. Champlin, also vessels from the La Plata country (Montevideo, Buenos Ayres, Rosario), and from Mexican ports, that gave clear bills of health during the season just ended. The pilots were instructed to convey to the Chandeleur quarantine vessels



from all Brazilian ports, Colon, and all West Indian ports excepting Barbados, and any vessel with sickness aboard. All others were sent to the Ship Island quarantine.

November 1 Dr. Champlin's services were discontinued, and I doubt if it is the intention to continue the State quarantine on Ship Island another year. It was reported to me that the State quarantine might be transferred to the neighboring Cat Island, which is owned, I believe, by a private individual, but is not well adapted for the purpose.

Now that Dr. Champlin has departed there is no quarantine officer nearer than Chandeleur to give to incoming vessels the requisite certificate regarding leprosy. One of the pilots approached me on the subject for information. On this account, and because Ship Island is so much nearer to the coast, and because it would emphasize the Government control there, I have to submit without recommendation the idea of transferring the United States quarantine officer from Chandeleur to Ship Island during the winter season, leaving Chandeleur in charge of a watchman. This suggestion is entirely my own and I mention it here with the idea of a verbal discussion of the matter upon my return.

Very respectfully,

WALTER WYMAN,  
*Surgeon, U. S. Marine Hospital Service.*

To the SUPERVISING SURGEON-GENERAL,  
*U. S. Marine Hospital Service, Washington, D. C.*

#### SAN DIEGO QUARANTINE STATION, SAN DIEGO, CAL.

The quarantine site acquired by purchase is located at La Playa on the north side of the bay, about  $1\frac{1}{2}$  miles from the entrance, 6 miles southwest of the city and 1,600 feet inside the Government reservation. It consists of two blocks of ground, 93 and 94, with a water frontage of 300 feet. A survey made in March, 1891, by H. C. Langrehr, showed that the largest portion of block 93 and Front street lay in the immediate shoal water, the southeast end line nearly reaching the channel. This survey demonstrated that the property line extended to a depth of only 15 feet of water. Recently, however, permission has been obtained from the board of State harbor commissioners for the Bay of San Diego to extend the proposed pier out to 25 feet of water at mean low tide. Accordingly a careful survey and hydrographic plat has just been completed under direction of Lieut. Col. W. H. H. Benyaard, Corps of Engineers, U. S. Army.

Plans for a wharf on iron piers, a warehouse, hospital buildings, officers' quarters, and disinfecting machinery, capable of dealing with the largest ocean steamers, have been prepared by the Supervising Architect, and construction will be carried on during the coming winter. The station is in charge of an acting assistant surgeon of the service.

Quarantine inspection of vessels entering the port has been maintained throughout the year, there having been an increased number of foreign arrivals, due principally to an increased trade with Mexico, Central and South America. The number of vessels inspected and passed during the period between August 16, 1890, and September 16, 1891, is 206; persons, 9,105. None were detained.

## SAN FRANCISCO QUARANTINE STATION, ANGEL ISLAND, SAN FRANCISCO BAY, CALIFORNIA.

[For diagram and detailed plans of the plant, see Annual Report, 1889, p. 112.]

Between August 15 and October 10, 1891, forty-six vessels were hailed and inspected, seven of which were detained and disinfected. This station has been opened during the fiscal year. The plant is an extensive one, consisting of barracks for the detention of persons exposed but not known to be infected, a lazaretto, and adjunct buildings (kitchen, dining room, nurses' room, dispensary, and storeroom), officers' quarters, disinfecting house containing three large steam disinfecting chambers, warehouse, and wharf. The station is provided with a steam launch, and a boarding steamer containing a fumigating apparatus is being constructed under contract and will be completed within a few months at a cost of \$26,500. This quarantine, by the desire of the State and municipal boards of health, is to serve as the general quarantine station, national and local, and on account of the large number of immigrants arriving at San Francisco it has been necessary to make special preparation for the detention of suspected immigrants as well as the treatment of those affected with contagious or infectious disease. At present the station is manned by a passed assistant surgeon of the service in command, W. P. McIntosh, a hospital steward, and seven hospital attendants.

Additional buildings for the detention of immigrants are necessary and the quarantine reservation should be surrounded by a fence to prevent the immigrants from trespassing upon the neighboring territory under the control of the Army. An estimate for the additional buildings and for the fence has been submitted for the action of Congress.

## PORT TOWNSEND QUARANTINE STATION, PORT TOWNSEND, WASHINGTON.

The total number of vessels hailed and inspected between October 15, 1890, and October 10, 1891, was 196; number of vessels detained in quarantine and disinfected, 4; number of vessels detained for observation, 1.

Inspection of vessels by an acting assistant surgeon of the service has been maintained throughout the year.

After several unsuccessful attempts to find a suitable location for a permanent quarantine plant, a site was finally selected on Marrowstone Point opposite Port Townsend, and formal request for a transfer of some twenty acres was made of the War Department.

This request was declined because, as stated in the opinion of the Chief of Engineers, the use of any portion of the reservation for a quar-



antine station would practically prevent the use of the remainder for military purposes.

The acting assistant surgeon reports as follows:

The station was opened July 13, 1889, since which time 535 vessels from foreign ports have been boarded and thoroughly inspected before being allowed to enter or pass. It is not the custom here to "speak" and pass a vessel, but the invariable rule is to go on board and make an inspection of the ship and crew, the character of ballast, and condition of cargo. In a majority of instances these vessels come from or pass through tropical countries and are therefore liable to be infected with contagious disease, hence the necessity for more than ordinary vigilance.

The figures I have given clearly demonstrate the wisdom and foresight in the establishment of a permanent station at this point. So far the temporary equipment has been sufficient to meet all necessities, due, however, largely to the fact that no great epidemic has prevailed in many of those countries holding close commercial relations with us.

Commerce between the ports of Puget Sound and foreign countries is constantly growing, and the increased demand for lumber from tropical countries and for flour in China (manufactured from Washington wheat) makes the danger to be anticipated much greater from vessels engaged in these two lines of traffic than from those passing around the Horn, and thus crossing the equator twice on their way between ports on Puget Sound and ports on either side of the Atlantic. It has sometimes been found necessary to fumigate and detain vessels coming from suspected ports, especially the ports of China and Japan, during the last season; but so far, even with our incomplete plant and equipment, contagion has not entered the country by way of Puget Sound since the opening of this station. But how soon the necessity may arise for the employment of the most complete appliances for the conservation of the public health no one can foresee. This station protects a wide area of territory, and being the principal port of entry for the Puget Sound collection district, nearly all vessels entering from foreign ports pass through the local office, and every vessel bound to any port of Puget Sound comes within the jurisdiction of this station.

Two of the great northern transcontinental railroads have their terminus on Puget Sound, and others are seeking objective points on this body of water, so that if contagion once gains headway in the State of Washington, it might be rapidly communicated to every part of the great Northwest. In view of these conditions it would appear advisable that the appropriation for the establishment and equipment of permanent buildings be made available before the emergency shall arise.

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#### REPORT OF THE SANITARY INSPECTOR, MARINE-HOSPITAL SERVICE, AT HAVANA, CUBA.

HAVANA, ISLAND OF CUBA,

*October 6, 1891.*

SIR: I have the honor of forwarding to you the following report of the transactions of this sanitary inspection office during the fiscal year ending 1891.

During that period there were 636 vessels of different classes and nationalities examined in this harbor and to which bills of health were given. Weekly abstracts of such bills of health issued have been regularly forwarded to the Supervising Surgeon-General as also information by cable of the departure of dangerous vessels when prudence seemed to dictate it.

The nationality, class, and number respectively of those vessels examined may be found in the following table:

Nationality.	Steamers.	Ships.	Barks.	Brigs.	Schoon- ers.	Total.
American.....	288	1	41	4	94	428
British.....	35	2	11	3	6	57
Spanish.....	62	4	49	7	2	124
French.....	13					13
German.....	4					4
Russian.....			2			2
Norwegian.....	4		2			6
Italian.....			2			2
Total.....	406	7	107	14	102	636

In the above table barkentines are classed as barks and barges as schooners. It will be seen that there were 406 steamers, 7 ships, 107 barks, 14 brigs, and 102 schooners; total, 636, of which nearly two-thirds were steamers.

In the 636 bills of health corresponding to the 636 vessels, which were examined and went to the United States during the year, the sanitary status or condition of the vessels was indicated by the words "good," "fair," and "fair only," "suspicious," or "bad." The terms "fair only," "suspicious," or "bad" are intended to be equivalent to "foul," and are used in this touchy foreign port, because they are less offensive to the average sea captain and persons interested in a vessel, who often insist upon seeing the health document, and if it is not to their taste might cause its disappearance.

Under this sanitary classification 343 of the above vessels were classed as "good," 193 as "fair," and 100 as "fair only," "suspicious," or "bad" (foul); total, 636.

Everyone of those vessels that had yellow fever occur aboard while here was at wharves, and 0.86 per cent of them at wharves on the Havana side of the harbor; thus continuing to demonstrate what I have often reported before, viz, that the maximum of danger of infection to a vessel by yellow fever in this harbor was at and near wharves, more particularly on the Havana side.

In accordance with the requirements of some ports in the United States there have been examined during the year 5,024 applicants for certificates of acclimation, etc., or health certificates. To 4,569 of those persons certificates were granted, and 455 were refused them.

*Nature of the acclimation and health certificates.*—The acclimation and health certificate sets forth that the recipient of one is acclimated to yellow fever, either by a previous attack of the disease or by a continuous residence for ten years or more in towns and cities habitually subject to it in an epidemic form, or where it usually prevails endemically, and who has passed through at least one severe epidemic; or that he is a native of places frequently visited by it, and that there is practically no danger of his conveying the disease.

The certificate also states that the person is protected from smallpox by successful vaccination or a previous attack of variola; that he is in good health (intimating freedom from leprosy), and that his presence threatens no danger from yellow fever, cholera, smallpox, or leprosy.

*Methods of obtaining information concerning persons who apply for certificate.*—First. Ask the applicant for certificate to produce his cédula, passport, or whatever document he is seeking to leave the port with. This is for the purpose of identification.

Fortunately for this service the maritime police requires some kind of cédula, and no person can leave the port without it, or even buy a passenger ticket. The cédula for the Spanish possessions, including Cuba, as also for most Spanish-American countries, give the birthplace of the person, his age, occupation, the place where he habitually resides, with personal descriptions, etc. That the quinta or drawing of men to serve in the Spanish army may be protected and efficient, these cédulas are



usually exact and truthful. These cédulas, or Government documents, therefore form a good basis on which investigations can be made.

Second. When the applicant is a native Cuban he must present his cédula for his personal identification. Also, a certificate from the alcalde of the ward where he resides saying how long he has lived in the ward and city. Furthermore, a certificate from some thoroughly reliable source that he has lived more than ten consecutive years in one of the seaports of the island. He must give palpable ocular proof that he has had smallpox or is protected from it by successful vaccination, and in case of the prevalence of an epidemic must be revaccinated, unless his vaccination is of recent date. This last rule applies to the subsequent classes.

Third. As to Spaniards or natives of the Spanish peninsula.

They must produce the documents which identify them, such as cédulas, passports, etc.; also the certificate of the inspector of vessels, stating the time when they arrived on the island; also, certificate of some respectable mercantile or banking house, stating how long they have lived in Cuba or other provinces, and in what places. Should the applicant claim to have had yellow fever, as most of them probably will, let him produce the certificate to that effect of the physician who attended him; or, in case he had it in an hospital, the certificate of the administrator of that institution that he passed through the disease there, with proper seals attached to the document. In addition, the person is closely questioned in regard to the symptoms he had in the beginning and through his sickness, how he felt, how he suffered, what was done for him, how he was nursed, etc., and other questions may be put which the nature of the investigation suggests.

Fourth. As to foreigners.

Their own statements as to length of time passed continuously in places subject to yellow fever, as well as having had the disease, etc., must be supported by the following documentary evidence. Their cédulas, which give a personal description of them, their age, nativity, profession, and the place where they habitually reside; also, certificate of the consul of their nation, to the effect that to his knowledge they have made correct statements; certificate of some well-known house or banking institution, that they are reliably informed of the length of time the applicant has passed in the tropics, and where, and as to his having had yellow fever. If it is claimed that the person has had yellow fever or the disease in question, the legalized certificate of the physician who attended him should be produced; or, in case it was passed through in a hospital, the certificate of the director of that institution must be shown, with proper seal attached. They are also severely questioned as to the symptoms they had when sick, as in the case of No. 3, the Spaniards.

Fifth. As to foreigners from a country or locality where yellow fever exists in an endemic form habitually.

The certificate of the applicant's consul, stating that the person has lived in such places continuously for ten years or more, or is a native of them; or, and in addition, the certificate of a commercial house or banking institution of good reputation, stating how long he has lived in those localities and that he is a native of them.

The preceding observations may be called the groundwork for obtaining information concerning persons who apply for certificates, although each case has its own peculiarities, and different methods have to be resorted to—too many to mention here—but the foregoing is the basis.

The mere word of an applicant is not sufficient; it must be supported by corroborating circumstances, facts, and proofs.

Great care is taken to inform ourselves as to the amount of confidence which can be placed in the certificates of different physicians, as well as in the certificates given by different consuls, bankers, merchants, etc.

When ought certificates to be granted by the sanitary inspectors and when not? When satisfactory proof has been furnished him that an applicant for a certificate enjoys practical immunity from yellow fever; that he is protected from smallpox; is not suffering from leprosy, and has not been exposed to cholera, then the certificate

should be granted, as was done in 4,569 cases during the last fiscal year, and when such proof can not be given the certificate should unhesitatingly be refused, as was done in 455 cases during the same time.

It is a source of great satisfaction to your sanitary inspection service at this place to be assured that, as far as known, not a single person who was favored with a certificate has fallen sick of yellow fever or smallpox; while, unfortunately, in a number of instances, persons who were refused the certificate have had those diseases since the refusal. It is still more gratifying when it is remembered that not less than 20,000 certificates have been issued by this office in the last few years, and in no instance has the recipient been afflicted by either disease subsequently.

To prevent and check fraud being practiced in the use of these certificates each passenger is confronted aboard with his certificate. This measure has ended all attempts at deception.

Sanitary inspection and quarantine system for the State of Florida, with rules adopted and carried out with steamers and other vessels plying between Havana and points in that State, from the 1st day of May to the 15th of November, inclusive, the remainder of the year being subject to other regulations.

Those vessels must be provided with crews acclimated to yellow fever. They must enter the harbor of Havana after sunrise and leave it before sunset of the same day, and between the dates above specified must not remain over night in the harbor.

They must not anchor, but moor to buoys in the open harbor and as far as possible from any other vessel; and while in this harbor must not, between the dates aforesaid, hold communication with the shore or other vessels except under conditions and restrictions imposed by your sanitary inspector or agent of the board of health of that State.

The vessels must be kept cleanly and in good sanitary state at all times; their bilges pumped out and thoroughly washed and cleaned at least twice a week with some powerful germicide and disinfectant as well as the vessel generally, and be subject to inspection at all times as to the condition of their cabins, state rooms, steerage, forecabin, water closets, bilges, etc.

They are not permitted to carry as passengers any person who has not a certificate that he is acclimated to yellow fever, by having had an attack of the disease or by continuous residence in cities and towns, for a period of ten years or over where such disease is endemic, or that the person is a native of such places, and has had either smallpox or been successfully vaccinated. No bedding or household goods can be carried from Havana to any port in Florida at any season of the year. Baggage between May 1st and November 15th which is bound to any point south of the latitude of Washington must be thoroughly disinfected, by superheated steam, dry heat of high temperature, medicated vapor or some efficient disinfecting ingredient according to the nature of the fabric. (Until recently much of this was commenced in the harbor of Havana.) No freight of a dirty, offensive, and insanitary character, which is likely to become fomites, or decayed fruit will be allowed to go aboard of said vessels in this port.

Every passenger must be confronted with his certificate aboard the vessel. Each member of the crew must be examined every trip and the vessel inspected. During the interval between the 15th of November and 1st of May the inspection of the vessel is kept up, examination of the crew is made and an oversight kept of the passengers, etc., and such measures taken as maritime sanitation may require.

I should have said in connection with baggage that that which is bound to points north of the latitude of Washington must come from houses and localities where no yellow fever or smallpox exists and the sanitary inspector must satisfy himself that such is the case.

The rules adopted for vessels and passengers going to New York during the quarantine season, which commences there usually about the first days of June and ends on or before the first of November, are substantially as follows:



Passengers who can furnish proof that they are acclimated to yellow fever and protected from small-pox in the sense described above in this report, are given health and acclimation certificates, with which instrument they are permitted to land by the quarantine physicians at New York immediately on the arrival of the steamer or vessel in that harbor, without one moment's detention on account of theories of the period of incubation of yellow fever. In other words, if the steamer should run there in two and a half days such passengers would be allowed to land at once. As it is, the usual time is between three and four days, and such travelers go ashore, not waiting for any five days to expire from Havana as formerly. This service gives great satisfaction to the quarantine physicians, the owners of steamship lines, and above all to the large majority of passengers who succeed in getting the acclimation certificate and thus avoid the vexatious detention in quarantine; but it is a little annoying to the very few who are not acclimated and who have to remain aboard until five days are up from Havana, or in case of sickness aboard, perhaps longer.

The passengers and crew are inspected before the departure of the vessel from Havana, and if any are found suspiciously or seriously sick they are sent ashore.

The vessels must remain in open bay as far as practicable and their crews not allowed ashore.

The ships or vessels must be kept as clean as possible. Thorough fumigation and disinfection is advised before the departure of the vessel, and is usually practiced; generally it is during the night before leaving to save time.

Sulphur and bichloride of mercury are the disinfectants commonly used.

By the advice of your inspector the steamships of the Ward Line are kept supplied with the above ingredients and proper apparatus, the steamers' officers being instructed how to use them.

During the nonquarantine season, as with all vessels bound to the United States, the steamers are inspected, crews and passengers properly examined, and if any sick or leprous person is found he is sent ashore.

*Rules for New Orleans steamers.*—The vessels must remain in the open bay while here, and their crews not allowed to go ashore. Communication with shore is subject to approval of the sanitary inspector, and persons wishing to go aboard must have a permit of same officer. The steamers are inspected in all parts as thoroughly as possible; their crews are examined before their departure, as well as all passengers, and if any are discovered to be seriously ill they are removed.

Vessels for all ports in the United States are inspected the year round, as well as crews and passengers, and results are embodied in the consular bill of health.

In the methods of obtaining information concerning persons who apply for certificates I should have mentioned that the applicant himself is first questioned and examined in every way possible, and then his statements must be corroborated by respectable testimony.

In respect to the effect these sanitary inspections and examinations have had in keeping out contagious fevers, leprosy, and other diseases from the United States: The most important diseases of a contagious or infectious character which the sanitary inspector has to watch and combat here at present are yellow fever, smallpox, and leprosy. They are the diseases which he is to use all his limited power to prevent from entering the United States. From his standpoint he has seen, as he believes, numerous instances in which all three of these diseases have been prevented from invading that country.

As a result of his examinations, cases of yellow fever have been discovered aboard and removed to the shore, and it has been frequently ascertained that cases had just occurred aboard and had been sent away prior to the inspection, and the vessels in these instances have been cleaned and disinfected. The United States and the State authorities have been frequently notified of the departure of dangerous vessels. There can be no question that the effect of these inspections, etc., is powerful

in preventing contagious diseases from reaching the United States, both directly and indirectly, and in various ways. The influence of those examinations in furthering maritime sanitation and in preventing contagious diseases from invading a vessel is quietly felt all through this harbor and "all along the line." In consequence of such examinations, captains and owners of vessels bound to the United States keep and put their vessels in better sanitary condition, bilges sweeter and cleaner, make efforts to prevent contagious diseases from invading the vessel, and if once aboard to get rid of the influence; in fact it is quite the custom for captains voluntarily during the dangerous season to request the inspector to have their vessels fumigated and disinfected.

It would seem that the sanitary inspector here could scarcely render a more efficient service than he is doing by his efforts to prevent disease germs from invading and being harbored in vessels.

The port of departure is evidently the place to begin the battle to prevent disease from being introduced into port of destination.

Keep vessels from becoming infected in a suspicious port, and there is little to be done elsewhere. As a matter of observation and fact, yellow fever on ships has markedly diminished since the inauguration of the sanitary inspection service at this port.

Smallpox is another of the contagious diseases which has often been prevented from getting into the United States. Cases of it have been removed from vessels, crews have been vaccinated, and the apartments fumigated. During the last few months of the fiscal year an epidemic of variola broke out in Havana. Florida was greatly exposed. New York and Louisiana less. From 400 to 500 persons were vaccinated at this office. In those cases where there was no evidence of former effect of the virus the person was detained for six or seven days for observation; if at the end of that time the vaccine had taken, all right; if not he was revaccinated and allowed to go. We always use the vaccine virus.

Leprosy, of which terrible disease there are not far from two hundred cases in Havana according to the opinion of specialists and persons in a position to form an intelligent opinion, is constantly knocking at our doors to effect an entrance. It requires constant vigilance on the part of your inspector to prevent some person among passengers and crews afflicted with the odious disease from getting into our country.

No less than eight lepers were directly prevented during the last year from leaving here for our shores. By directly I mean were either taken off vessels or told they would not be allowed to go where they applied for certificates. I am aware of several who were indirectly prevented also.

From the foregoing and from various other reasons which might be adduced it is evident that the sanitary examinations here are an important factor in keeping contagious diseases out of the United States.

It must be remembered that the most of the above facts are embraced in the consular bill of health, made out by the inspector and certified to by him, as well as the consul-general.

Each vessel carries its bill of health for the information of the health officer at its port of destination.

I am aware that reports of this class are tiresome in detail, and when made out at this busy quarantine season are necessarily very imperfect and disconnected.

Begging a reasonable indulgence for the shortcomings, I am, very respectfully, your obedient servant,

D. M. BURGESS,

*Sanitary Inspector, Marine-Hospital Service.*

To the SUPERVISING SURGEON-GENERAL,

*Marine-Hospital Service, Washington, D. C.*



REPORT OF THE SANITARY INSPECTOR MARINE-HOSPITAL  
SERVICE AT EL PASO, TEX.

OFFICE UNITED STATES SANITARY INSPECTOR

MARINE-HOSPITAL SERVICE,

*El Paso, Tex., August 20, 1891.*

SIR: In compliance with instructions I have the honor very respectfully to give account of services rendered as United States sanitary inspector Marine-Hospital Service at El Paso, Tex., from date entering service December 18, 1890, to June 30, 1891.

As seen on map, El Paso, Tex., is located in the extreme western corner of Texas, on the east bank of the Rio Grande, which separates the United States and the Republic of Mexico. Exactly opposite of El Paso, Tex., is the city of Paso del Norte in the Canton de Brazos, State of Chihuahua.

A little more than ten years ago there were less than 200 persons in El Paso all told; no railroads, nothing but a few old adobes (sun-dried brick) houses. To-day El Paso has five railroads and a population of about 12,500, with business streets and houses as substantial and elegant as can be found anywhere.

Magnificent schoolhouses, churches, and as wide awake and intelligent a population as can be found in St. Louis, San Francisco, New York, or Boston.

The military, strategic, and geographical importance of this point was also soon recognized by our Government, and as early as 1858 a permanent and important post was established, and has ever since been maintained here.

A permanent substantial, with all modern improvements, sixteen company post is now under construction.

Paso del Norte, the Mexican town exactly opposite El Paso, Tex., was founded about the year 1600. These two towns represent different nationalities, languages, and civilization, but are in fact one town, connected with street railways and bridges, and the Rio Grande is passable even to foot passengers almost six months of the year. Most all common laborers and factory hands in El Paso have their families and live in Paso del Norte, Mexico. Many children of the latter town are pupils of the convent and public schools of El Paso, Tex., and on Sundays people visit churches on both sides.

The synopsis of the El Paso health officer's report to the State health officer of Texas will be of interest to the medical profession generally and to all who are interested in sanitary matters. It will also show at a glance the importance and necessity of a United States sanitary inspector at this point.

Approximately the population of El Paso is in round numbers 10,000. Americans, 8,000; Mexicans, 2,000.

The death rate per 1,000 for 1890 was, Americans, 7; Mexicans, 49.

Total death rate for 1889 and 1890 from diphtheria, croup, and scarlet fever, Americans, 6; Mexicans, 6; total, 12.

Paso del Norte, Mexico, opposite El Paso, Tex., is estimated to have 10,000 inhabitants, or about equal the population of El Paso, Tex. There were eighty-nine deaths in that city from diphtheria, croup, and scarlet fever between 1889 and 1890.

It would be easy to multiply these instances, but enough has been said to demonstrate how, by wise enactment of sanitary laws, malignant diseases may be prevented.

The city of El Paso has a health officer who faithfully sees to it that all sanitary enactments of the city authorities are strictly enforced, and in consequence the city is one of the healthiest in the country.

Paso del Norte, Mexico, has a city physician and a board of health, but its laws are to my certain knowledge a dead letter. Some three years ago there was a terrible epidemic of diphtheria at Paso del Norte. With a criminal carelessness no attention whatever was paid by the city authorities to isolate or prevent intercommunication between families. Hundreds of children died and according to ordinary

rules it is astonishing that not every child died of diphtheria. That the population does not die of typhoid fever, smallpox, or dysentery and their good luck is only ascribed to their easy, simple way of living, the sun, and the invigorating pure air.

Paso del Norte has no system of sewerage or drainage, and for probably 250 years or more the people cast their filth in the front of their houses and their excreta on different places in close proximity to their homes. It is but justice to state, however, that this state of affairs is contrary to the laws of the Mexican general Government, which in its legislation has done much to diffuse a knowledge of public hygiene amongst its people.

The past fifteen years, practicing my profession mostly amongst the Mexican population of Paso del Norte, I have made it my duty to explain to them the power of vaccination, and its almost certain protection against smallpox, and I have vaccinated at all times free of charge every child and grown person I was asked and permitted to vaccinate, and I have the satisfaction to state that to my knowledge there was not a single case of smallpox amongst this people during the past twelve months, and consequently there was none at El Paso, Tex.

I am assured by the oldest inhabitants that this is the first year to their recollection that Paso del Norte is free of this scourge. Taking into consideration that no ordinary sanitary precautions are taken by the authorities of Paso del Norte to prevent contagious diseases, and judging from the past, it is but reasonable to fear that in the future malignant diseases may become epidemic at any time and again and again, thereby endangering also the health of the city of El Paso, Tex., and the necessity of a United States sanitary inspector at this point is at once obvious. The Mexican Central Railroad in its 1,225 miles between Paso del Norte, Mexico, and El Paso, Tex., passes through twenty-one cities having a population of almost 1,000,000 inhabitants. It is a notorious fact that smallpox, typhoid fever, and other contagious diseases are prevalent in the interior and on the road of the Mexican Central almost all the year, and yellow fever at times, and it is reported that the latter disease just now causes many deaths at Vera Cruz. Passengers from any point in Mexico could reach El Paso by rail within four days. Passengers from reported infected districts are quarantined for ten days, and such of the immigrants that are not vaccinated I vaccinate on the spot.

It will not be amiss to state in this connection that while the European immigrants are generally successfully vaccinated and no fear is to be apprehended, most of the immigrants of the Mexicans into the United States are not vaccinated at all or very indifferently.

Knowing the Spanish language and being on good terms with the city authorities of Paso del Norte no objection has been raised to my visiting the trains at the arrival at Paso del Norte, which gives me every day forty-five minutes' time to carefully examine in every particular and vaccinate such as are not vaccinated and intend to enter into the United States.

One day during past March an American passenger on the Mexican Central Railroad very positively informed me that he had reason to believe that one of the wagon's accompanying the train was used as temporary hospital on the road for China railroad laborers suffering smallpox. Making inquiries of the officials on this subject they would neither admit or deny it. I requested them not to bring the car in the United States for the period of thirty days. Having taken notice of the number of the car I know that my request has been complied with. I recommended the disinfection of the wagon by burning sulphur brick with closed doors.

The Mexican Central Railroad officials take pains to inform such passengers that come from infected towns that a strict quarantine is enforced at El Paso, Tex., and travelers understanding it rarely attempt to come across until the ten days of prohibition have passed, especially because there are many pleasanter places in Mexico for a force halt of ten days than Paso del Norte.

Previous to my appointment as sanitary inspector it used to be customary to ship many dead bodies into the United States of Americans having died in Mexico.



I have informed the Mexican Central officials that I would in the future require a certificate from the attending physician that the person died of a common disease and at a point not infected with any malignant disease. Since then only two bodies were shipped into Texas, and both corpses were accompanied with the proper certificates. During the past year I have been called upon to visit and vaccinate children and grown persons in several out-of-the-way settlements in the Territory of New Mexico, which I have always done at my own expense.

I suppose it is known that small-pox has been prevalent in many Texas towns and border cities, both in Texas and in Mexico, near the Rio Grande, during the past year.

El Paso, Tex., and Paso del Norte, Mexico, were to my knowledge the only two cities on the border that have been free from this scourge. While I do not claim that these two cities were free from this pestilent disease—on account of extreme precautionary vigilance in this matter—I have the satisfaction to believe that my services have not been altogether fruitless.

The city of El Paso, Tex., is no doubt destined to become the great commercial metropolis of this region.

Her position relatively is about equidistant from the great cities of Mexico, San Francisco, St. Louis, New Orleans, Kansas City, and Galveston; and it being a notorious fact that yellow fever occurs at some points every year, and other contagious diseases almost through all the year in the interior of Mexico and on the line of the Mexican Central, and there being in Mexico many cities where there is no precaution taken whatever to prevent such diseases, and there being a constant and daily intercommunication between the United States and the Republic of Mexico at El Paso, Tex. I will be permitted to request and recommend that this place be made a permanent station for a United States sanitary inspector, and will be permitted to quote an old but terse saying, "An ounce of precaution is worth a pound of cure."

I have the honor to be, very respectfully, your obedient servant,

E. ALEXANDER,

*United States Sanitary Inspector, Marine-Hospital Service.*

To the SUPERVISING SURGEON-GENERAL,

*U. S. Marine-Hospital Service, Washington, D. C.*

## REPORT OF WORK PERFORMED IN THE LABORATORY OF THE MARINE-HOSPITAL SERVICE AT NEW YORK, AND OF OBSERVA- TIONS AND STUDIES IN THE LABORATORIES IN BERLIN AND PARIS,

*By Passed Assistant Surgeon J. J. Kinyoun.*

TREASURY DEPARTMENT,  
OFFICE OF THE SUPERVISING SURGEON-GENERAL,  
MARINE-HOSPITAL SERVICE,  
*Washington, D. C., July 15, 1891.*

SIR: I have the honor to submit the following report of work done in the laboratory during the last fiscal year. Referring to the report made on the antagonism of cobra venom, which was incorporated in the annual report of 1890, I have to state that this subject has received further investigation, especially with regard to the physiological effects of the administration of cobra venom in minute quantities. The line of inquiry concerning the etiology and bacteriology of enteric fever and pneumonia has been pursued with reference to the production of immunity in lower animals, and with marked success as regards pneumonia, but unsuccessfully as

regards enteric fever. The result of all investigations of cases, both of enteric fever and pneumonia, occurring at the Marine Hospital, New York, has been, without exception, confirmatory of the observations of others, viz, that their cause is a specific microörganism. The question pertinent to this inquiry is, does one attack of either disease, enteric fever or pneumonia, render immunity from subsequent attacks? From clinical observations and laboratory studies all evidence appears to indicate the affirmative with regard to pneumonia.

Several analyses of drinking water have been made and reports rendered thereon; one particular instance, which is thought worthy of note, was an analysis of a quantity of water from an artesian well of Ocean Springs, Miss. By report from those who had used the water for drinking purposes it had apparently caused profuse diarrhea; hence the application for its analysis. Aside from containing a large quantity of albuminoid material in solution, it held in suspension a considerable quantity of brownish matter in the form of scales, having all appearances of iron rust. On microscopical examination this proved to be vegetable matter, chiefly that of the marsh grasses indigenous to that locality. Evidently a layer of this had been covered with alluvial deposit, and had been partially converted into peat. The scales were rich in nitrogen, and from this, without doubt, arose the large percentage of albuminoid material. The water was an excellent medium for propagation of bacteria; for on bacteriological analysis it gave enormous numbers of bacteria to the cubic centimeter. Fortunately for those who consumed this water there were no pathogenic forms found therein. It was demonstrated in the laboratory that typhoid bacillus grew in this water with great facility.

Quite a number of microscopical examinations have been made for various members of the corps, and reports have been furnished. The subject of disinfection methods, applicable to the several quarantine stations, has been under consideration. Work on this subject was suspended on account of orders from the Department to proceed to Berlin, Germany, with a view of entering the bacteriological laboratories of the hygienic institute of the University of Berlin, and to become familiar with the methods of investigation as practised there. On arrival in Berlin, January 2, 1891, I found all arrangements had previously been made with Prof. Koch, by the United States legation, for my reception into his laboratory. Prof. von Esmarsch, jr., who was at that time acting for and in behalf of Prof. Koch, afforded the necessary facilities for prosecution of investigations in the different lines in which I was especially interested, Prof. Koch having immediate supervision of my work.

Berlin, which is the acknowledged military capital of Europe, had suddenly become, as well, the Mecca for physicians and tuberculous patients, on account of Prof. Koch's new discovery. At this time Prof. Koch had not intimated a word concerning the composition of this substance, or the manner of its preparation. Many were the speculations made concerning it, and the desperate efforts made by the majority of physicians to obtain possession of his wonderful substance were interesting as well as, in some instances, amusing. There was a greater manifestation of the mercenary spirit by those who sought it than I had ever supposed the medical profession to possess. Berlin had momentarily become a great hospital; tuberculous patients were everywhere, and, generally speaking, in the last stage of the disease, while adding to their physical discomfort were the rigors of the worst winter Germany had experienced for thirty years. The death rate from such cases was very high. All the hospitals were filled to their utmost with patients desiring to have the Koch injections given them; the clinics were crowded with men anxious to see and follow the treatment, while the medical journals contained little else than reports concerning the great remedy. Finding there could be no satisfaction in studying such cases, arrangements were made with Prof. Gerhardt whereby the study and observation of cases could be facilitated in his wards at Charité Hospital, and also at Moabit Hospital, under direction of Prof. Koch and his assistants. During a period covering four months careful observations were made on a large number of cases. It must be



said that a large proportion of these were so far advanced that they were not fit subjects for treatment. It was found that to get any accurate data it became necessary to make a thorough physical examination in each instance. Naturally, with such a large proportion of cases of tubercle of the lung in its advanced stages, a commensurate death rate followed. Prof. Virchow gave us free entrée to all examinations and demonstrations held in the Pathological Institute. Here were held all the necropsies of cases dying in Charité and coroners' cases in the city of Berlin. Ample facilities were afforded to carefully follow out the pathological changes that were present in such cases.

It was evident from the first that this peculiar substance was capable of doing great harm as well as good. In some cases of tuberculosis in the first stage, good results followed its use; patients were evidently benefited and the disease seemed to be arrested, while others of the same class appeared to be restored to health. Just what the ultimate result of the last named may be remains to be told. On the other hand, those cases which were suffering from an advanced stage of the disease experienced dire results from its administration. The patients, as a rule, either refused the treatment after a short time or quickly succumbed. The substance appeared to hasten the tubercular processes. A careful examination made of the sputa of many cases thus treated, gave evidence that the tubercle bacilli were in no degree influenced by it, and that they had lost none of their virulence.

The post-mortem examinations were extremely interesting in some cases of tuberculosis not very far advanced; there was a peculiar pneumonia set up, evidently due to the influence of the remedy. Virchow termed it a pneumonia bordering on gangrene. A necrosis of the cell elements surrounding and forming the tuberculous nodule. In several instances there appeared to be a secondary tubercular infection arising from the old tubercular foci. The only explanation which Virchow could give for this peculiar condition was that tuberculin caused primarily a necrosis of the tubercular areas, that in the process of elimination and absorption of these necrosed areas, the tubercle bacilli are set free, are absorbed in the lymph and blood currents, and are thus disseminated through the surrounding parts. The necropsies made by him caused Virchow to make a protest against its use. He termed it a poison capable of great harm, and even went further and said that the majority of deaths that occurred during its use were directly attributable to it. This made a direct issue between the schools of Virchow and Koch, and was considered by Koch's adherents as an open declaration of war. It must be stated here that all observation goes to show that it is an inherent custom among the Teutonic nations, in their scholastic training, to choose a master and follow his tenets blindly, never giving nor receiving from any other, unless overwhelmed and vanquished by opposing facts and arguments. Not until after unfavorable reports were received concerning its use in other countries, did the adherents of Koch's school limit the number of cases or modify their method of treatment. During the enforced absence of Prof. Koch in Egypt, the treatment underwent extensive modifications. This was first instituted in the wards of Moabit (the hospital set aside for the use of Prof. Koch in his investigations), and the treatment was revolutionized. The object now sought after was only to assist nature; not as was formerly advocated to cause the extensive necrotic changes which were thought so necessary to effect a cure. Certainly, upon the whole, a larger number of cases were apparently more benefited by the small injections than under the old treatment. Their deductions were made from careful clinical observations, and they found that a minute dose of tuberculin would produce a local reaction where there would be no systemic manifestations. In a group of more than 200 cases, which had or were undergoing treatment in the wards of the several hospitals of Berlin, not more than 2 per cent could be termed permanently improved or recovered, notwithstanding there have been statistics sent out embracing the larger proportion of these cases, which put the total recoveries at a much higher figure.

While these observations were under way a series of experiments, under direction

of Prof. Koch, was begun with tuberculin upon infected animals for the purpose of studying the effects at different times upon the tissues, especially the lungs. A large number of experiments were made with the remedy, administering both large and small doses, during different stages of the disease. It was found that when tuberculin was administered in large doses, sufficient to produce the characteristic rise in temperature, it caused, as a rule, a necrosis in and around the tubercular nodules; also fatty degeneration more or less marked of the various organs, chiefly the heart and liver. The tubercle bacilli were in no wise influenced by it, but on the contrary appeared in many instances to aid the rapid infiltration of all the tissues. After the tubercle bacilli had infected the internal organs, tuberculin was of no avail; it appeared only to hasten the end. Koch's statements were based upon observations made on tuberculous guinea pigs which were suffering from local infection, and he applied the remedy before the tubercle bacilli had reached the internal organs.

On Prof. Koch's return from Egypt he at once set to work upon the preparation of tuberculin in a modified form. In his laboratory experiments he discarded the liquid form, and used instead the solid residue of precipitation. He said that notwithstanding the adverse criticisms made concerning tuberculin, although not thoroughly satisfied with it himself, he was convinced that the remedy was by far the best that had been used for the treatment of tuberculosis up to the present time, and if we could only benefit and cure 5 per cent. of all cases, we could even then exceed all methods now known. He was particularly chagrined because American physicians had discontinued its use. He urged upon all investigators to continue their experiments upon tuberculosis with tuberculin, or with any modification that might present itself, in hopes that we might yet find something that would be better in the treatment of this disease.

He spoke very favorably of the investigations by Hùeppe and Scholl, of Prague, and their preparation of a tuberculin. In regard to the production of tuberculin he remarked that its preparation was not so difficult as once supposed, and that any one could prepare it.

The general equipment of the laboratories of the Hygienic Institute was not what would have been expected. This is due to the fact that the institution has been limited for funds. A few of the several laboratories are well equipped, but at the expense of those who work there.

Special instructions were given in the method of investigating the protozoa, their life, history, and the causative relation between them and certain infectious diseases. Kartulis, of Alexandria, Egypt, had succeeded in isolating one of this group, which he terms the amœba of acute dysentery. Prof. Koch was of the opinion that in this direction lay a great field for individual work, and that, as heretofore, not enough attention had been given it.

Prof. Proskauer and Dr. Th. Weyl have made extensive research in the chemistry of bacteria, Weyl having been designated by Prof. Koch to make a chemical analysis of the tubercle bacillus. A part of the report was published in "Deutsche Medicinische Wochenschrift." The first intimation given concerning the toxic character of tuberculin and the metabolic products of the tubercle bacillus was by Dr. Weyl, soon after he had completed his work of analysis.

Also, in connection with Drs. Behring and Kitasato, inquiry was made concerning the immunizing properties of blood serum of certain animals. It was during this winter that Dr. Kitasato formulated his theory concerning immunity against tetanus and its practical application to two cases of *trismus neonatorum*. Unfortunately the treatment in both failed, though the injection of small quantities of blood serum from immune rabbits produced the characteristic rise of body temperature. Hankin, of Cambridge, England, who was at Berlin during this time, gave as an explanation of the phenomena connected with immunization that there is at all times present in the blood plasma a certain bactericidal substance, which he termed a "protective proteid," which, during the attack of an acute infectious process, increases to a con-



siderable degree. This he claims to have been able to isolate from animals suffering with anthrax, and that he had been able to immunize susceptible animals against this disease.

If the theories of Kitasato, Behring, and Hankin could be put into practical operation in combatting acute infectious diseases by immunizing persons against them, the results would be all that could be desired. At present their work must necessarily be confined to the experimental laboratories. On completion of the work in Berlin orders were given me to proceed to Paris, France, for the purpose of entering the Pasteur Institute in order to study the methods used in prevention of rabies. So much has already been written concerning the institute that it will be unnecessary to describe it; but suffice to say that at present it is preëminently the finest and best equipped institution of the kind in the world. With the name of Pasteur there is always associated rabies and its prevention; so much so that a false impression has arisen as to the purports of the institution. The several laboratories for general instruction, as well as for special investigations, are complete in themselves. There can be had at this institute as good, if not better instruction in bacteriology, bacterial chemistry, biology, and the cause and prevention of rabies than anywhere else.

There has been organized only recently an Institute for Preventive Medicine in London, where this institute has been copied *in toto*.

Koch, in formulating plans for the new laboratories in Berlin, sent a special architect to Paris to make a report on the buildings and equipment of this institution.

The laboratories are open daily throughout the year. In the antirabic department inoculations are made every day at 11 a. m.; the trepanization of animals for preparation of the inoculations every day at 2 p. m.

So perfect is the system, that fully 100 people can receive the injections within forty minutes. The whole series of spinal cords of rabbits is kept on hand from day to day, so that any one applying for treatment can commence the injections without delay. Statistics regarding the number of persons bitten are as reliable as statistics can be made. They not only require that a veterinarian's certificate be furnished with every case possible, but demand a portion of the brain or spinal cord of the animal which has bitten the person to accompany the case, in order that control tests may be made. By these control experiments it has been demonstrated that 50 per cent of specimens accompanying the patients are from rabid animals.

The laboratories for the attenuation and preparation of the different vaccines are under special direction of M. Chamberland. Here large quantities of the vaccine are prepared for distribution to the different provinces of France and to foreign governments, many of whom have sent delegates to have special instruction given them in this particular branch of bacteriology. Although considerable revenue accrues to the institute from sale of the attenuated virus of the different diseases, this does not in the least deter them from making known to all who desire the whole process of preparation. Since Metchnikoff's identification with the institute he has centered all interest in his theory of phagocytosis. The French as a rule accept his teachings; many of them defend him in their writings. During my stay he gave a series of lectures on phagocytosis and inflammation, which lectures were regarded as a sort of annex to the university course. Since formulating his theory of phagocytosis, he has, from criticism of the German school and by reason of further investigation, modified it to a considerable extent. He now claims that the leucocyte, not the large white cell, is responsible for the phagocytosis which takes place; that living bacteria are destroyed in the body by these, and that their chemical products, which are inimical to the microörganism, such as tetanus or diphtheria, are wholly derived from these cells. The demonstrations which he was kind enough to give us certainly seemed to prove that his theory was founded on a firm basis. Metchnikoff can not be considered an enthusiast, but a patient, plodding, conscientious worker in everything he attempts to investigate. His criticism of tuberculin is one of the fairest and most impartial articles that has been printed. Professor Duclaux,

of the University of Paris, has a large, well-equipped laboratory here, where a considerable number of analyses are conducted in bacterial chemistry, investigations into the chemical character of bacteria, and their metabolic products.

Since the laboratory has been removed from the Marine Hospital, New York, to the national capital, it has now the room and equipment requisite for proper work, and is available for general bacteriological investigations. It is hoped that appropriations commensurate with its importance will be forthcoming for its further enlargement. The subjects of hygiene and demography have not as yet received the proper amount of attention from our legislative bodies. This laboratory, situated and equipped as it is, should form the nucleus for one national in its character, and developed on the same lines as those established by Germany, France and England.

Very respectfully,

JOSEPH J. KINYOUN,

*Passed Assistant Surgeon Marine Hospital Service.*

To the SUPERVISING SURGEON-GENERAL,

*U. S. Marine Hospital Service, Washington, D. C.*

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### LABORATORY REPORT, MARINE HOSPITAL SERVICE, DRY TORTUGAS, FLORIDA.

U. S. MARINE HOSPITAL SERVICE,

DISTRICT OF THE GULF,

PORT OF KEY WEST QUARANTINE STATION, SURGEON'S OFFICE,

*August 8, 1891.*

SIR: Referring to your letter of August 1, 1891 ("F. W. M."), I have the honor to state that the operations in the laboratory at this station during the past year are as follows:

The laboratory was fitted up for use in the investigation into the causes of yellow fever. Unavoidable delays took place in the delivery of the apparatus, and it was not received until May, 1890.

This fact was reported to the Bureau, and permission was asked to proceed to Havana for the purpose of obtaining pathological material from the hospitals there. There having been no cases of yellow fever at this station, I was directed to apply to Sanitary Inspector D. M. Burgess, at Havana, who was requested by the Bureau to furnish me with such material. After considerable delay I received, in September, 1890, the following pathological material, viz:

Stomach contents, blood from right ventricle, and a portion of liver, all from a case of yellow fever occurring in the practice of Dr. Burgess, and sent to me at this place. Subsequently, through the kindness of Dr. Emelio Martinez, I received a further supply of material, consisting of blood, stomach contents, and intestinal contents from a second case of yellow fever, and obtained within two hours after death. Upon this supply of material operations were commenced and were continued until December 10, 1890, when I went away on leave, and, being ordered to New York at the expiration of the leave, and subsequently to Washington, to conduct experiments with the Koch lymph, the investigations were not continued after December. During this period a large amount of work was done, and I think the foundation laid for subsequent success in the investigation ordered. I believe that the following point has been demonstrated: That in the intestinal canal of cases of yellow fever there occur organisms which grow by preference on acid culture medium, either agar-agar or gelatine. Experience has tolerably well demonstrated the fact, as a rule, that organisms found in the adult human intestinal tract only flourish in a neutral or slightly alkaline culture medium, their growth being retarded or altogether inhibited by acidity of the medium. I have since my return to this station resumed



operations upon this line as promising most definite results, and propose, with the sanction of the Bureau, to push them to a conclusion during the remainder of this summer and coming winter, viz:

To investigate the intestinal organisms, aerobic and anaerobic, occurring in the intestinal canal of yellow fever, with a view to their isolation, systematic description, and pathological effects, if any, upon the lower animals. The field, as will be seen from the above brief outline, is a wide one, and the investigations therein will consume considerable time, but I do not regard the results obtained thus far as being wholly negative, and feel sanguine of ultimate success upon the lines indicated. While these investigations are in progress I will resume collateral investigations in regard to any organisms which may be found in the blood, or other fluids or tissues of the body as occurring in yellow fever.

The greatest difficulty which has been met up to this time is the impossibility during the greater part of the year of doing any work with nutrient gelatine as a culture medium, on account of the high temperature which prevails ( $28^{\circ}$  to  $30^{\circ}$  C.) during the greater part of the year. The differential cultivation of organisms in agar-agar is unsatisfactory, slow, and difficult, and to successfully use gelatine it must be worked in an artificial low temperature not exceeding  $18^{\circ}$  to  $20^{\circ}$ . Owing to the scarcity of ice it has been impossible to attain this end, but I hope soon, in view of my representations in the matter to the Bureau, to have this difficulty removed. During the past year a heliostat has been added to the equipment of the laboratory, and I intend as the work progresses to make permanent record of the results by the photomicrographic process. I trust that the results obtained, small though they are, will justify the Bureau in allowing me to continue these investigations either to a successful termination, or until experience has demonstrated that the pursuit is hopeless.

Very respectfully, your obedient servant,

H. D. GEDDINGS,  
*Assistant Surgeon, Marine Hospital Service.*

To the SUPERVISING SURGEON GENERAL,  
*U. S. Marine Hospital Service, Washington, D. C.*

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## OFFICIAL EXPERIMENTS WITH TUBERCULIN.

[Instructions.]

TREASURY DEPARTMENT,  
OFFICE OF THE SUPERVISING SURGEON-GENERAL,  
MARINE HOSPITAL SERVICE,  
*Washington, D. C., January 19, 1891.*

SIR: You are hereby placed on temporary duty at the port of Georgetown, D. C., for the purpose of making experiments as to the efficiency or otherwise of the recently invented "lymph" for the cure of tuberculosis, by Prof. Koch, of Berlin, a supply of which is herewith transmitted. Your method of making the test will be as follows:

1. You will take a photograph of each patient.
2. His weight.
3. You will ascertain the area of dullness on the chest by means of the pleximeter and mark its limits with iodine, and photograph the chest.
4. The usual clinical record will be kept throughout, commencing from the time of entering the hospital, particularly observing the time of rising of the evening hectic and its duration; the time of appearance of perspiration. Its relative amount and duration will also be noted. The temperature will be taken at 7 a. m., between

1 and 2 p. m., and 7:30 p. m. The clinical charts similar to those used in the investigations and diagnoses of yellow fever by Dr. Guiteras and Dr. Faget will be used. The time of administration of the lymph will also be noted. The time of appearance of pyrexia, commonly termed reaction, and its appearance, will also be noted.

Besides the foregoing, any other clinical symptoms that may occur to you in the progress of the case will be noted.

The sputum cups will be labeled for each patient under observation, and the nurse will be cautioned about allowing them to become mixed in any way.

Of course I need not impress upon you the importance of this matter, not only as to the results of the success, or otherwise, of the experiments, but as showing the careful methods of the Service in the conduct of such investigations. The exact truth, if it can be ascertained, is wanted.

Every facility will be given you for the conduct of this experiment, and any special directions that may occur to me I will give you from time to time.

In the meantime such requisitions as are necessary for the conduct of these experiments you will give a memorandum of to Passed Assistant Surgeon Magruder, who is hereby directed to make requisition, in order that they may be charged against the port of Georgetown, of which he is at present in medical charge.

These experiments must necessarily be private, so that the patients may not be disturbed, but all results will be made public at the conclusion by this Bureau.

Respectfully yours,

JOHN B. HAMILTON,  
*Supervising Surgeon-General, Marine-Hospital Service.*

Assistant Surgeon H. D. GEDDINGS,  
*U. S. Marine-Hospital Service, Washington, D. C.*

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## REPORT.

PROVIDENCE HOSPITAL,  
*Washington, D. C., April 30, 1891.*

SIR: I have the honor to report that, in accordance with your orders of January 19, 1890, experiments with tuberculin have been conducted at this hospital upon 12 cases of tubercle of the lungs and larynx and upon 1 case of lupus, and have been systematically continued up to this date.

While the number of cases has been small, I believe that the information derived from a careful study of their course will prove of value, as demonstrating certain difficulties which have been encountered, and certain propositions which we are now in a position to formulate as the result of nearly three months of continuous application to the subject. The uniform system which has been pursued in the administration of the remedy has been to begin with small doses, gradually increased as the condition of the patient seemed to warrant, the end being to produce no violent constitutional disturbance, but to employ the smallest possible quantity which would produce the end in view, viz, the elimination of the tuberculous tissue with the least possible risk to the well-being or life of the patient.

This will explain, therefore, why no dosage appears in the following records of more than 0.007 gram to any of our 12 patients. This quantity has thus far always sufficed to produce a reaction sufficiently well marked, but in no case so great as to cause any great discomfort to the patient or any apprehension to the attendant.

A few remarks as to the general effects observed from the administration of tuberculin will, I hope, prove of interest.

In no instance have the primary injections of the remedy failed to produce a decided reaction in a patient in whose sputum the tubercle bacilli had been demonstrated, and this demonstration has been made a *sine qui non* prior to admitting any one to our treatment.



In all cases the injection of tuberculin has been followed by more or less discomfort, varying from a feeling of slight malaise to a condition of violent rheumatic pains in the back and limbs. Headache has been a constant sequel to the injection of tuberculin, the intensity varying from the very slightest pain to that characteristic of the severest forms of hemicrania, photophobia being present, but gastric disturbance was not marked.

A depressing effect upon the pulse has been noted so frequently as to preclude its being an accidental occurrence, and we must therefore attribute to the remedy a vaso-inhibitory power of no slight degree.

The effect upon the urine has been to increase with singular uniformity the quantity of the secretion, rendering it limpid, pale, and of diminished specific gravity. Several examinations were made for albumen and sugar with negative results. The reactionary fever has as a rule passed off with a sweat of varying amount from a slight moisture of the face and extremities to a quantity sufficient to saturate clothing and bedding. All observations show it to be strongly alkaline in reaction. No effect has been noted upon the bowels. There has been no pain or diarrhea produced, and the effect upon the stomach has been limited to slight nausea and loss of appetite during the pyrexia, and for a part of the day succeeding it.

The general effect of the remedy has been for a time to increase the severity of the cough and the quantity of the expectoration. In the cases in which a favorable result has been reached this has gradually become less marked, and the expectoration has very much diminished in quantity and become entirely mucous in character.

In these cases also the night sweats and hectic symptoms have gradually undergone amelioration, and body weight, which was at first diminished under the treatment, has increased to its normal limit and in two instances has gone beyond that point. In two cases the improvement in condition has been so marked that it might be claimed that a cure had been effected. A spirit of sound conservatism would seem to dictate that these should only at most be characterized as "apparent" cures.

We append in detail a clinical record of each case, showing the range of temperature, doses administered, and such other data as may be necessary for an intelligent understanding of the progress of the cases.

#### CASE NO. 1.

P. C.; age, 39; nativity, New Jersey, U. S. A.; occupation, seaman; height, 5 feet 9 inches; weight, 72,450 kilograms; chest expansion,  $2\frac{1}{2}$  inches.

Transferred to Providence Hospital, Washington, D. C., from U. S. Marine Hospital, Baltimore, Md. Has been sick since May, 1889; at that time contracted a severe cold and cough, which after lasting four days was accompanied by severe hemorrhage. Had about two hemorrhages in twenty-four hours for eight days. Was under treatment in Marine Hospital, Buffalo, N. Y., for six weeks. The hemorrhages were checked, but coughed continually. Made two lake voyages to Chicago immediately subsequent to discharge from hospital. But a rapidly increasing debility compelled him to again stop work. During this time he lost 27 pounds in weight. Had hectic fever and profuse night sweats. Was admitted to the Marine Hospital, Baltimore, Md., where he remained until transferred to this hospital. His father died of consumption at the age of fifty-five.

*Present condition.*—On the right side there is dullness on percussion from the lower border of the clavicle to the upper margin of the third rib, and extending from the sternal margin to the anterior axillary line. Over this area there is a loss of the vesicular murmur and increased bronchial breathing. Respiratory sounds over the rest of the lung front and back are slightly accentuated, but otherwise normal. On the left side there is dullness from clavicle to lower border of second rib extending from sternal margin to slightly beyond the anterior axillary line. The vesicular murmur is diminished, bronchial breathing increased. Some fine râles are heard over the area; there is no increase of bronchial breathing sounds.

On January 21, the patient was injected with 0.001 gram of tuberculin, at 10:30 a. m.; temperature—10:30 a. m., 37.4° C.; 2 p. m., 37.6° C.; 7 p. m., 40.2° C.

January 22: 10:30 a. m., injected 0.002 gram of tuberculin. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38° C.; 7 p. m., 39.6° C.

January 30: 10:30 a. m., injected 0.003 gram tuberculin. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 39.4° C.; 7 p. m., 44° C.

February 3: 10:30 a. m., injected 0.004 gram tuberculin. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.6° C.; 7 p. m., 38.6° C.

February 6: 10:30 a. m., injected 0.005 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 37.6° C.; 7 p. m., 38.6° C.

February 10: 10:30 a. m., injected 0.006 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 37.2° C.; 7 p. m., 38° C.

February 11: Weight to-day, 72.405 kilograms.

February 13: 10:30 a. m., injected 0.006 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 37.6° C.; 7 p. m., 38.2° C.

February 16: 10:30 a. m., injected 0.006 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 37.6° C.; 7 p. m., 37.4° C.

February 19, 10:30 a. m., injected 0.006 gram. Temperature—10:30 a. m., 37.2° C. During this day no reaction.

February 22, 10:30 a. m., injected 0.007 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 37.2° C.; 7 p. m., 38.2° C.

February 23: Examination of the sputum to-day shows absence of tubercle bacilli, but no change in the physical signs is evident upon examination.

February 25: 10:30 a. m., injected 0.007 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 37.4° C.; 7 p. m., 38.2° C.

February 28: 10:30 a. m., injected 0.007 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 37.2° C.; 7 p. m., 37.6° C.

March 3: 10:30 a. m., injected 0.007 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 37° C.; 7 p. m., 37.8° C.

March 6: 10:30 a. m., injected 0.007 grams. Temperature—10:30 a. m., 37° C; highest 37.4° C.

March 8: 10:30 a. m., injected 0.007 gram. Highest temperature, 37.6° C.

March 10: 10:30 a. m., injected 0.007 gram. Highest temperature, 37.4° C.

March 11: Examination shows marked improvement in physical signs. Dullness is diminishing. Bronchial breathing less marked. Cough diminished. Sputum free from bacilli. Night sweats have ceased.

March 12: 10:30 a. m., injected 0.007 gram. Highest temperature, 37.6° C. During the past two weeks has gained 2,086 kilograms.

March 14: 10:30 a. m., injected 0.007 gram. No reaction.

March 16: 10:30 a. m., injected 0.007 gram. Highest temperature, 37.2° C.

March 17: Examination shows steadily diminishing areas of dullness. Improved breathing sounds. Continued absence of tubercle bacilli in sputum, with increase in weight.

March 23: Injected 0.007 grams. Highest temperature, 37.4° C.

March 24: Has gained 1,364 kilograms in past two weeks. Physical signs much improved.

March 25: Injected 0.007 grams. Highest temperature 37.2° C.

March 26: Examination to-day shows dullness upon the left side has altogether disappeared and breathing sounds are normal. Upon the right side there is an area of dullness about 1½ inches in diameter. The breathing sounds are normal over the entire lung. The patient simply remains in hospital for observation. So far as his physical condition is concerned, as evidenced by physical examination, general condition, and his feelings, he is entirely well and is to be regarded as an apparent cure.



## CASE No. 2.

S. M.; age, 34; nativity, Ireland; height, 5 feet 8 inches; weight, 60,075 kilograms; chest expansion, 1 inch.

Has been sick for nearly three years at irregular intervals. Has had severe cough for fifteen months, and has been steadily losing flesh. During May and June, 1889, was under treatment in Marine Hospital, Cleveland, Ohio, for fifteen days. In July, 1890, had a series of hemorrhages which continued at intervals for sixteen days, on account of which he was readmitted to hospital and was under treatment thirty-one days. Was then under treatment in hospital at Pittsburg for eighty-two days, and was transferred to Marine Hospital, Baltimore, Md., where he remained until transferred to Providence Hospital, Washington, D. C. Has had hectic fever and night sweats, and has been steadily losing flesh. During May, 1889, his voice became very husky, which has continued up to the present time. There is no family history of phthisis.

*Present condition.*—Is fairly well nourished, has slight cough, which is not very troublesome. Expectoration scanty, mucopurulent, and slightly streaked with blood; now has moderate night sweats. On the right side there is a dullness on percussion from clavicle to fourth rib, extending from near the sternal margin to anterior axillary line. Over this area the vesicular murmur is lost. The bronchial sound is increased. There are a few mucous râles anteriorly. Posteriorly there is increased bronchial breathing. On the left side there is dullness from clavicle to third rib, extending from sternal border to mammary line. Auscultation gives increased bronchial breathing and diminished vesicular murmur anteriorly. Posteriorly there is bronchial breathing, but no râles. The voice is very husky. The sputum shows occasional tubercle bacilli; they are not abundant, there being no large clumps, and in no field are more than three or four found.

January 21: Had a slight hemorrhage to-day.

January 24: Injection to-day 0.001 gram tuberculin at 10:30 a. m. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.2° C.

January 25: A slight hemorrhage.

January 26: Is feeling better; no sweat last night.

January 27: Hemorrhage to-day in slightly increased quantity.

Ordered Fl. Ext. Ergot. gtt. 20 every two hours. Injected lymph, 0.002 gram. P. m., no return of hemorrhage.

January 28: A violent hemorrhage; ordered acid sulph. dilute gtt. 10 Fl. Ext. Ergot. gtt. 20 every three hours.

January 29: Hemorrhage has recurred twice to-day in small amount; is feeling weaker.

January 30: Injected 0.003 gram; reaction much slower. Temperature—2 p. m., 39° C.; 7 p. m., 39.8° C.

February 3: Injected 0.003 gram; reaction hardly marked. Temperature—2 p. m., 38.2° C.; 7 p. m., 37° C. This is the last injection of tuberculin administered.

February 4: Patient had a very violent hemorrhage to-day; is prostrated and complains greatly of dyspnœa. His appetite has failed completely, and he is visibly losing ground. The dyspnœa and loss of strength progressively increased until February 16 when he died, at 10:40 a. m.

*Necropsy (six hours after death).*—Body emaciated, *rigor mortis* absent, post-mortem extravasation well marked on arms, back, and buttocks. The usual incision was made from the suprasternal fossa to the symphysis; there was but little subcutaneous fat and the muscles were paler than normal. On opening the thoracic cavity the diaphragm was found to be opposite the sixth intercostal space on right side and the fifth on left side. There were old pleuritic adhesions on right side, binding together the visceral and parietal layers, and the pleura was adherent to the lungs and to the diaphragm. On the left side the same condition obtained except that the

adhesions were more numerous, denser, and apparently of older date. The left lung was consolidated in its upper lobe. There were a few deposits of caseous material, and in the apex of the lobe there was a small cavity with smooth walls, which had apparently existed for some time. The lower lobe was normal in appearance, pervious to air, and everywhere crepitated upon pressure. The right lung was extremely hyperæmic as a whole, the upper lobe partially consolidated, and in the apex a cavity the size of a walnut, containing caseous material and apparently of quite recent origin. There was a marked absence of general tubercular infection in both lungs. It is here to be noted that the consolidated areas as revealed post-mortem very closely corresponded with the areas of dullness mapped out during life.

The pericardial fluid was increased in amount, there being about 50 cubic centimeters present. The heart was slightly larger than normal, its muscular structure rather pale and flabby in appearance, and the left ventricle filled with recent blood clots, which extended into the transverse aortic arch. Upon the leaflets of the mitral valve there was a clot of almost decolorized fibrin. All the valves were competent. The liver was enlarged, especially the right lobe, and was slightly fatty. The gall bladder was full but not distended. The mesentery was thin, pale, and almost all of its fat had disappeared. There was no enlargement of the mesenteric glands. The stomach was empty and normal in appearance. The intestines were normal, and the peritoneal coat perfectly smooth and glistening. The spleen was larger than normal, hard, and slate gray in color externally. The kidneys were normal in size and appearance. The brain and spinal cord were not examined.

#### CASE No. 3.

T. C.; age 28; nativity, United States; height, 5 feet 8 inches; weight, 67,950 kilograms; chest expansion, 3 inches; occupation, seaman.

Was first taken sick in August, 1890. Contracted a severe cold and cough at sea, and had high fever for ten days. Had always previously enjoyed good health, with the exception of irregular malarial paroxysms. The cough continued; he lost weight and strength, had fever and night sweats. After fifty-one days at sea was admitted to Jefferson Medical College Hospital, Philadelphia, and remained there three days. Three weeks after was admitted to Marine Hospital, Baltimore, Md., where he remained until transferred to Providence Hospital, Washington, D. C. A paternal uncle died of phthisis at 56; a maternal first cousin of the same disease at 22.

*Present condition.*—On the right side there is dullness on percussion extending from clavicle to upper margin of fifth rib, and from sternal border to within an inch of the interior axillary line. Over this area there is a loss of vesicular murmur, and increase of bronchial sounds. Over the middle and lower lobe of the lung there are numerous coarse mucous râles anteriorly; posteriorly there is increased bronchial sound and mucous râles. On the left side there is dullness from the clavicle to lower margin of second rib, extending from sternal border to one inch beyond mammary line; over the upper lobe of the left lung there is a diminution of the vesicular murmur and a slight increase of the bronchial sounds; there are no râles. There is considerable cough, expectoration is muco-purulent; he has night sweats. Tubercle bacilli in moderate number are found in the sputum.

January 23: Injected 0.001 gram of lymph at 10:30 a. m. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 38.2° C.; 7 p. m., 39.2° C.

January 27: Injected 0.002 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 38.4° C.; 7 p. m., 37.6° C.

January 30: Injected 0.003 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 37.4° C.; 7 p. m., 39.2° C.

February 3: Injected 0.004 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 37.4° C.; 7 p. m., 37.4° C.

February 6: Injected 0.005 gram. Temperature—10:30 a. m., 36.6° C.; 2 p. m., 37.6° C.; 7 p. m., 39° C.



February 10: Injected 0.006 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 37.6° C.; 7 p. m., 38° C.

February 16: Injected 0.006 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 37° C.; 7 p. m., 37.4 C.

February 19: Injected 0.006 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 37.2° C.; 7 p. m., 37.2° C.

February 22: Injected 0.007 gram. Temperature—10:30, 36.8° C.; 2 p. m., 37.8° C.; 7 p. m., 39.2° C.

February 23: Cough and expectoration have both diminished. Night sweats have ceased. Examination of the sputum shows absence of tubercle bacilli.

February 25: Injected 0.007 gram. Temperature—10:30 a. m., 36.6° C.; 2 p. m., 37.4° C.; 7 p. m., 37.6° C.

February 28: Injected 0.007 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 37.4° C.; 7 p. m., 37.6° C.

March 3: Injected 0.007 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 37.8° C.; 7 p. m., 37.8° C.

March 6: Injected 0.007 gram. Highest temperature reached, 37.2° C.

March 9: Injected 0.007 gram. Highest temperature, 37.6° C.

March 14: The patient shows marked improvement; cessation of night sweats; expectoration very scanty and entirely mucous. No bacilli in sputum. Areas of dullness have disappeared; there is decrease of the bronchial, and increase of the vesicular, breathing sounds. He has gained in weight, and upon the 16th insisted upon his discharge from the hospital, since which time a letter received from him announces that he is serving as a seaman on board of a pilot boat from the port of Baltimore; that he feels entirely well, has no cough, and has since his discharge from hospital gained 8 pounds in weight.

#### CASE NO. 4.

J. D. A.; age, 31; nativity, United States; occupation, printer; height, 5 feet 8 inches; weight, 5.200 kilograms.

Has been sick for the past eighteen months. Was first taken with a severe cold, which left him with an obstinate cough. His throat became suddenly affected, his voice very husky, and much difficulty in swallowing. The expectoration was profuse, but mucous in character; he lost weight rapidly, and began to suffer with hectic fever and night sweats. The cough became more severe, the expectoration purulent, and he had about three months ago two slight hemorrhages, whether from the throat or lungs is not known. His mother died of consumption.

*Present condition.*—The patient complained very much of his throat, his voice is extremely husky, and he is scarcely able to speak above a whisper. There is great difficulty in swallowing. Examination of the throat shows intense congestion of the larynx and vocal cords, but no ulceration. Physical examination shows upon the left side dullness from the clavicle to the lower border of the third rib, extending from the sternal border to within an inch of the anterior axillary line; over this area there is a loss of vesicular murmur and increased bronchial sounds. There are numerous mucous râles over whole upper lobe anteriorly; posteriorly loss of the vesicular murmur in the upper part and a few mucous râles; upon the right side there is exaggerated breathing sounds. The patient has night sweats, slight hectic fever, and tubercle bacilli in considerable number are found in the sputum.

January 24: Injected 0.001 gram lymph at 10:30 a. m. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 37.8° C.; 7 p. m., 39° C.

January 27: Injected 0.002 gram. Temperature—10:30, 37° C.; 2 p. m., 38° 2 C.; 7 p. m., 38.8° C.

January 30: Injected 0.003 gram. Temperature—10:30 a. m., 37° 2 C.; 2 p. m., 37.6° C.; 7 p. m., 39° 4 C.

February 3: Injected 0.003 gram. Temperature—10:30 a. m., 36° 8 C.; 2 p. m., 37° 6 C.; 7 p. m., 37° 8 C.

February 6: Injected 0.004 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 37° 8 C.; 7 p. m., 39° 2 C.

February 10: Injected 0.004 gram. Temperature—10:30 a. m., 37° 2 C.; 2 p. m., 37° 6 C.; 7 p. m., 38° 6 C.

February 13: Injected 0.004 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 37° 4 C.; 7 p. m., 38° 6 C.

February 16: Injected 0.005 gram. Temperature—10:30 a. m., 36° 6 C.; 2 p. m., 38° 2 C.; 7 p. m., 38° 2 C.

February 23. The patient is much more comfortable, night sweats have almost ceased, hectic fever is diminished. The bacilli have disappeared from the sputum examined to-day.

February 25: Injected 0.006 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38° C.; 7 p. m., 38.4° C.

February 28: Injected 0.006 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 37.4° C.; 7 p. m., 38.4° C.

March 3: Injected 0.006 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 37.6° C.; 7 p. m., 38.8° C.

Examination shows that the area of dullness first mapped out has diminished by one-half, and there is a marked improvement in breathing sounds, but the laryngeal symptoms which had markedly diminished have returned with increased severity. The throat is very painful, and the swallowing of solids is almost impossible. A spray of carbolic acid and cocaine affords some relief, but the patient is much discouraged at the obstinacy of his throat trouble. He has gained somewhat in weight, but this was all lost within the next few days; he has had three slight hemorrhages, which are evidently from the throat.

March 6: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 38.2° C.; 7 p. m., 39.2° C.

March 8: Patient to-day declined further treatment, and left the hospital. His condition as to the pulmonary trouble is certainly improved, the area of dullness having diminished, and the breathing sounds being almost normal, but his laryngeal trouble is certainly worse than at the beginning of the treatment. Inquiry has failed to elicit any information concerning him since his departure from the hospital, but it must be said that the effect of the treatment upon him was prejudicial in its general results.

#### CASE No. 5.

L. E. K.; age, 35; nativity, United States; occupation, printer; height, 5 feet 11 inches; weight, 51.975 kilograms.

Has been sick for over two years, during which time he has had a more or less troublesome cough, with profuse expectoration. For the last six months his condition has grown decidedly worse; he has lost flesh rapidly, has constant fever, and profuse night sweats. Has never had any hemorrhages, but is very much debilitated, and appetite is very poor. He is much emaciated, and his breathing is very much embarrassed. Examination gives upon the right side dullness from the clavicle to the upper margin of the fifth rib, extending from the mammary to the posterior axillary line. The vesicular murmur over this area is lost, bronchial breathing is very marked, and there is a loud blowing sound over the upper lobe of the lung, and numerous mucous râles both front and back; upon the left side there is dullness from the clavicle to the third rib, and from the sternal border to near the anterior axillary line.

January 30: Injected 0.001 gram lymph. Temperature 10:30 a. m., 38.8° C.; 2 p. m., 40.2° C.; 7 p. m., 39.2° C.

February 3: Injected 0.002 gram lymph. Temperature 10:30 a. m., 38.2° C.; 2 p. m., 38.8° C.; 7 p. m., 39.2° C.



February 6: Injected 0.003 gram. Temperature—10:30 a. m., 38.8° C.; 2 p. m., 39° C.; 7 p. m., 39.8° C.

February 10: Injected 0.004 gram. Temperature—10:30 a. m., 38.6° C.; 2 p. m., 39° C.; 7 p. m., 40.4° C.

February 13: Injected 0.004 gram. Temperature—10:30 a. m., 38.2° C.; 2 p. m., 38.8 C.; 7 p. m., 40° C.

February 16: Injected 0.005 gram. Temperature—10:30 a. m., 38° C.; 2 p. m., 38.6° C.; 7 p. m., 39.6° C.

February 19: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.6° C.; 7 p. m., 38.2° C.

February 20: A secondary reaction took place, the temperature reaching 40° C. twenty-four hours after the injection.

February 22: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39° C.; 7 p. m., 40. C.

February 25: Injected 0.066 gram. Temperature—10:30 a. m., 38.2° C.; 2 p. m., 39.4° C.; 7 p. m., 39.6° C.

February 28: Injected 0.006 gram. Temperature—10:30 a. m., 38.6° C.; 2 p. m., 39° C.; 7 p. m., 40.2° C.

March 3: Injected 0.006 gram. Temperature—10:30 a. m., 38.8° C.; 2 p. m., 38.2° C.; 7 p. m., 39.6° C.

After this injection it became obvious that the treatment was doing the patient no good. He has lost flesh and the night sweats and hectic symptoms are exaggerated. The lung tissue is evidently breaking down and the formation of cavities progressing. The treatment was abandoned and the patient left the hospital on March 12. It was learned that he died in less than a week after leaving the institution, and this case is to be regarded, in our judgment, as one in which the fatal issue was almost beyond a doubt precipitated by the use of the remedy.

#### CASE NO. 6.

J. A. B.; age, 43; nativity, United States; occupation, clerk; weight, 55,575 kilograms; chest expansion, 2 inches.

Has been sick about eighteen months. In the summer of 1890 was attacked with a cough, which has persisted, and since that time has lost flesh gradually, but there has been no rapid emaciation. Has constantly had since first attacked some hectic fever and night sweats, and has experienced such loss of strength as to compel him to abandon his occupation. Has had considerable trouble with his throat, for which he has been treated constantly. His father suffered for years with chronic bronchitis, but died after a comparatively short illness from some throat trouble, nature unknown. His mother is still alive, aged 80.

*Present condition.*—Upon the right side there is dullness from the clavicle to lower border of second rib and from near the sternal margin to within an inch of anterior axillary line. Over this area there is loss of vesicular murmur and bronchial sound is increased. There are numerous fine râles in the right apex, and breathing sounds are generally roughened and attenuated over the whole lung, front and back. On the left side there is a small circular area of dullness from the clavicle to the upper margin of the third rib, extending about an equal distance on either side of the mammary line. Expectoration is profuse, purulent, and sputum contains tubercle bacilli in rather large number; has night sweats and is emaciated, great debility, is unable to walk any distance without dyspnoea, his voice is husky, and examination shows general congestion of the fauces, larynx, and vocal chords, but no ulceration.

January 23: 10:30 a. m. Injected 0.001 gram lymph. Temperature—10:30 a. m., 37.06. C.; 2 p. m., 37.8° C.; 7 p. m., 40.2 C.

January 27: Injected 0.002 gram. Temperature—10:30 a. m., 37.4 C.; 2 p. m., 39.2° C.; 7 p. m., 40.6° C.

January 30: Injected 0.003 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 38.6° C.; 7 p. m., 39.6° C.

February 3: Injected 0.004 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38.8° C.; 7 p. m., 37.2° C.

February 6: Injected 0.005 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.6° C.; 7 p. m., 39.6° C.

February 10: Injected 0.006 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 39.2° C.; 7 p. m., 39.2° C.

February 14. Injected 0.006 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.4° C.; 7 p. m., 39° C.

February 17: Injected 0.006 gram. Temperature—10:30 a. m., 38.8° C.; 2 p. m., 38.2° C.; 7 p. m., 39.4° C.

February 19: Injected 0.006 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38.6° C.; 7 p. m., 39° C.

February 22: Injected 0.007 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 39.6° C.; 7 p. m., 39.2° C. He lost 1,575 kilograms in weight. Expectoration is somewhat diminished. Tubercle bacilli are fewer in number. Night sweats have decreased.

February 25: Injected 0.007 gram. Temperature—10:30 a. m., 38.4° C.; 2 p. m., 39.2° C.; 7 p. m., 39.2° C.

February 28: Injected 0.007 gram. Temperature—10:30 a. m., 36.6° C.; 2 p. m., 38.8° C.; 7 p. m., 39.2° C.

March 3: Injected 0.007 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 39.2° C.; 7 p. m., 38.8° C.

March 6: Injected 0.007 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.6° C.; 7 p. m., 38.8° C.

March 9: Injected 0.007 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 39.8° C.; 7 p. m., 38.6° C.

March 12: Injected 0.007 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.8° C.; 7 p. m., 38.6° C.

March 16: Injected 0.007 gram. Temperature—10:30 a. m., 38.4° C.; 2 p. m., 39.8° C.; 7 p. m., 39.2° C. Tubercle bacilli have disappeared. Area of dullness is diminishing, breathing sounds are improving, but his loss of body weight continues. He has lost 2 kilograms since February 22.

March 19: Injected 0.007 gram. Temperature—10:30 a. m., 38.8° C.; 2 p. m., 39.2° C.; 7 p. m., 38.2° C.

March 22: Injected 0.007 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.8° C.; 7 p. m., 39.2° C.

March 25: Injected 0.007 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.8° C.; 7 p. m., 38.6° C.

March 28: Injected 0.007 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 39.2° C.; 7 p. m., 37.4° C.

March 31: Injected 0.007 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.4° C.; 7 p. m., 39.2° C.

April 3: Injected 0.007 gram. Temperature—10:30 a. m., 38° C.; 2 p. m., 38° C.; 7 p. m., 38.4° C.

April 6: Injected 0.007 gram. Temperature—10:30 a. m., 38° C.; 2 p. m., 39.2° C.; 7 p. m., 37.6° C.

April 9: Injected 0.007 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 38.4° C.; 7 p. m., 38.6° C.

April 12: Injected 0.007 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.6° C.; 7 p. m., 39.2° C.

April 15: Injected 0.007 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 37.4° C.; 7 p. m., 38.6° C.

April 18: Injected 0.007 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.8° C.; 7 p. m., 40.2° C.

April 21: Injected 0.007 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 39° C.; 7 p. m., 38° C.



This case is still under treatment. Tubercle bacilli are absent from the sputum. The dullness upon the left side has disappeared and breathing sounds on that side are normal. Upon the right side the area of dullness has diminished at least one-half, and breathing sounds are very much improved. So far as physical signs go, the patient is improved. He has gained some strength. The cough has almost disappeared and expectoration is mucous and scanty. His dyspnoea is measurably relieved. He takes a fair amount of exercise. His appetite is good, and he feels encouraged, and it must be said that the treatment has benefited him, though the final issue is still far from certain.

#### CASE NO. 7.

R. W. H., age, 51; nativity, United States; weight, 69,750 kilograms; occupation, clerk.

The patient has been a sufferer since boyhood with asthma, has for years lead a very irregular life, and been addicted to alcoholic excesses. Three years ago, rather suddenly developed a persistent cough attended by much dyspnoea, and progressive emaciation. Had night sweats and some hectic fever, the cough became progressively worse, and the dyspnoea more severe, which was attributed by the patient to his asthma, but his emaciation, to which was now added great debility, compelled the abandonment of his occupation, and he was admitted to hospital.

*Present condition.*—The patient presents the typical barrel-shaped thorax of emphysema; his dyspnoea is extreme; he has night sweats constantly, and more or less fever during the whole twenty-four hours. There is some œdema of the face and extremities, but the urine contains no albumen; there is a slight mitral regurgitant murmur upon the right side; there is dullness from clavicle to lower border of second rib, and from sternum to anterior axillary line. There is loss of vesicular murmur over the upper lobe, and increased bronchial sounds. Respiratory murmur is exaggerated over the whole right lung, front and back. Upon the left side dullness extends from the clavicle to within 1 inch of the nipple, and from sternal margin to anterior axillary line; upon this side the rhythm of the breathing sounds is much disturbed. There is no marked increase in the bronchial sound, but the vesicular murmur is rough and irregular. There are numerous coarse mucous râles over the whole lung, front and back. The sputum is mucous in character, with numerous purulent and caseous masses, and contains tubercle bacilli.

January 24: At 10:30 a. m. Injected 0.001 gram lymph. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 38° C.; 7 p. m., 40.2° C.

January 27: Injected 0.001 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 38° C.; 7 p. m., 38.6° C.

January 30: Injected 0.002 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 37.6° C.; 7 p. m., 40.4° C.

February 3: Injected 0.003 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 37.8° C.; 7 p. m., 38.4° C.

February 6: Injected 0.004 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38° C.; 7 p. m., 40.2° C.

February 10: Injected 0.005 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 37.6° C.; 7 p. m., 38.2° C.

February 13: Injected 0.006 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 38° C.; 7 p. m., 38.2° C.

February 16: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 38° C.; 7 p. m., 38.4° C.

February 19: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 38° C.; 7 p. m., 38.4° C.

February 23: Injected 0.006 gram. No reaction beyond 38.2° C. Examination of the sputum shows a diminution in the number of tubercle bacilli.

February 25: Injected 0.006 gram. No reaction beyond 38° C.

February 28: Injected 0.006 gram. No reaction beyond 38° C.

March 3: Injected 0.006 gram. No reaction beyond 38° C.

March 6: Injected 0.006 gram. No reaction beyond 38° C.

March 9: Injected 0.006 gram. No reaction.

March 10: General condition seems somewhat improved; there are still a few bacilli present in the sputum. The patient has gained 2,522 kilograms in the past two weeks.

March 12: Injected 0.006 grams. No reaction beyond 38° C.

From this date to March 26 doses of tuberculin of 0.007 gram were administered every fourth day, without any general reaction. Although there were no changes in the physical signs presented by the patient, great hopes were entertained of a favorable issue, but at this time there supervened a violent attack of influenza, necessitating the discontinuance of the treatment. In a few days all that had been gained was lost. Emaciation took place very rapidly, dyspnoea increased to an almost alarming extent, and the heart's action became very feeble and labored. Up to the present time it has been found impossible to resume the use of the remedy. His asthma is now worse than ever; his debility is extreme, and his condition critical. The supervention of the influenza was most unfortunate, and the present condition of the patient is largely to be attributed to its effects, but it must be said that his condition is now worse than at the inception of the treatment.

#### CASE NO. 8.

R. B., female; age, 18; nativity, United States; occupation, seamstress; weight, 42,300 kilograms.

The patient's father and mother both died of phthisis when she was quite a small child. Has always been delicate and liable to sudden and violent colds; two and one-half years ago contracted a cold, which left her with a severe and persistent cough. She rapidly grew emaciated and became extremely debilitated, had hectic fever and night sweats, more or less profuse.

*Present condition.*—Patient is badly nourished, illy developed, and anæmic in appearance. Upon the left side there is dullness from clavicle to lower border of second rib, and from sternum to 2 inches beyond mammary line; over the upper lobe of the lung there is diminished vesicular murmur and increased bronchial breathing, with abundant mucous râles. Upon the right side there is no dullness, but the respiratory sounds are accentuated and roughened. There are tubercle bacilli in the sputum, which is abundant and purulent in character.

January 23: Injected 0.001 gram lymph 10:30 a. m. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 39.4° C.; 7 p. m., 40° C.

January 27: Injected 0.002 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 39.6° C.; 7 p. m., 40° C.

January 30: Injected 0.003 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 39.2° C.; 7 p. m., 39.6° C.

February 3: Injected 0.004 gram. Temperature—10:30 a. m., 38.2° C.; 2 p. m., 38.6° C.; 7 p. m., 38.8° C.

February 6: Injected 0.005 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.6° C.; 7 p. m., 40.2° C.

February 10: Injected 0.006 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 38.6° C.; 7 p. m., 38.4° C.

February 13: Injected 0.006 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38° C.; 7 p. m., 39.8° C.

February 16: Injected 0.006 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 39.6° C.; 7 p. m., 40° C.

February 19: Injected 0.006 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 39.8° C.; 7 p. m., 38.8° C.



February 22: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.2° C.; 7 p. m., 38.4° C.

February 25: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.8° C.; 7 p. m., 38.2° C.

February 28: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.2° C.; 7 p. m., 38.8° C.

March 3: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.6° C.; 7 p. m., 38.8° C.

March 6: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.2° C.; 7 p. m., 38.6° C. Up to this time the patient has manifested quite a marked improvement; her hectic symptoms have diminished, night sweats have disappeared; there has been a slight increase in body weight, but there is no change in the physical signs or in the number of tubercle bacilli in the sputum.

March 9: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.2° C.; 7 p. m., 38.6° C.

March 12: Injected 0.006 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.2° C.; 7 p. m., 38.8° C.

March 15: Injected 0.007 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39.2° C.; 7 p. m., 38.6° C.

March 18: Injected 0.007 grams. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 38° C.; 7 p. m., 39.8° C.

March 21: Injected 0.007 grams. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 38° C.; 7 p. m., 39.6° C. From this date there begins a sudden but steadily progressing change for the worse; the hectic symptoms have returned with increased severity, there are night sweats, rapid emaciation, increase in expectoration, and in the number of tubercle bacilli.

March 25: Injected 0.007 grams. Temperature—10:30 a. m., 38.2° C.; 2 p. m., 39.2° C.; 7 p. m., 39.8° C. Two more injections of 0.007 grams each were administered, but the rapidly increasing debility of the patient, the alarming severity of all her symptoms, and the certainty that the case was approaching a fatal termination demanded a cessation of the treatment. At present her condition is much worse than at the inception of the treatment. The area of dullness has increased, the right lung has been invaded, and in both lungs there are physical signs pointing to the rapid breaking down of tissue and the formation of cavities. This case may be pointed to as one in which, after some amelioration of the general symptoms, a rapid change for the worse was induced by the remedy. The patient still lingers, but it would seem that her death is only a question of a comparatively short time.

#### CASE No. 9.

Mr. A.: age, 38; nativity, United States; weight, 45,000 kilograms; profession, lawyer.

Has been sick since the autumn of 1888, since which time he has suffered with some cough, which, however, has at no time been very troublesome. There has been steady but no very rapid emaciation; there is great debility and distressing dyspnoea. The gastric symptoms have throughout been pronounced, there is loss of appetite, faulty digestion, and at times some diarrhoea. There is no family history of phthisis; several of the family on both sides have died of heart disease.

*Present condition.*—Patient is very much emaciated, has pronounced hectic fever, night sweats, and cough, with rather scanty mucopurulent expectoration containing numerous tubercle bacilli. There is some huskiness of voice, but examination of the throat gives negative results. There is much gastric irritability. The patient has lived for months upon a strict regimen, which is the result of experience. Examination of the chest shows over the right lung a triangular area of dullness extending from the clavicle to the lower border of the third rib, its upper limit being laterally from the mammary line to near the anterior axillary. Over the right lung there is a general disturbance of the rhythm of the breathing sounds, the ves-

icular murmur being roughened and the bronchial breathing accentuated. There are in the upper lobe numerous coarse mucous râles. Upon the left side there is also a triangular area of dullness with the same upper limits as upon the right, but its apex extends to the fifth rib; the same condition obtains upon auscultation as upon the right.

January 27: 10:30 a.m., injected 0.001 gram lymph. Temperature—10:30 a.m., 37.8° C.; 2 p.m., 38.6° C.; 7 p.m., 39.8° C.

January 30: Injected 0.001 gram. Temperature—10.30 a. m., 37.6° C.; 2 p. m., 38.4° C.; 7 p. m., 39.4° C.

February 3: Injected 0.001 gram. Temperature—10.30 a. m., 37.8° C.; 2 p. m., 38.2° C.; 7 p. m., 38.8° C.

February 6: Injected 0.002 grams. Temperature—10.30 a. m., 37.2° C.; 2 p. m., 37.8° C.; 7 p. m., 38.8° C.

February 10: Injected 0.003 grams. Temperature—10.30 a. m., 37.4° C.; 2 p. m., 37.8° C.; 7 p. m., 38.8° C.

February 13: Injected 0.003 grams. Temperature—10.30 a. m., 37.2° C.; 2 p. m., 38.2° C.; 7 p. m., 38.8° C.

February 16: Injected 0.004 grams. Temperature—10.30 a. m., 37.6° C.; 2 p. m., 38.4° C.; 7 p. m., 39° C.

February 19: Injected 0.004 grams. Temperature—10.30 a. m., 37.4° C.; 2 p. m., 38.2° C.; 7 p. m., 39.2° C.

February 22: Injected 0.004 grams. Temperature—10:30 a. m., 38° C.; 2 p. m., 38.4° C.; 7 p. m., 39.4° C. After this injection the patient declined further treatment, and left the hospital. It is beyond the scope of this report to hazard opinions as to the probable result in this case. It only remains to be said that at the time of his departure there was no marked change for better or worse. His debility was slightly less; beyond this there was absolutely no change, either visible or apparent, upon physical examination.

#### CASE NO. 10.

W. H. J.; nativity, United States; last occupation, seaman; weight, 54,000 kilograms.

Two years ago patient was serving as ordinary seaman in the U. S. Navy, and was at St. Thomas, West Indies. In the line of duty he contracted what is supposed from his description to have been pneumonia, supervening upon an attack of acute bronchitis. Convalescence was never fully established; he was invalided, sent home, and discharged from the service for physical disability. Since then he has rapidly grown worse; his mother died of phthisis shortly after his birth. Present condition: He is emaciated, debilitated, has a constant cough, with profuse purulent expectoration; tubercle bacilli in considerable number are found in the sputum. Examination shows dullness on right side from clavicle to lower border of third rib, extending from the sternum to anterior axillary line. In the upper lobe of the lung there is a loss of vesicular murmur and increase of bronchial sounds, there are also numerous mucous râles. In the left lung there is no dullness, but roughened vesicular sound and increased bronchial breathing. There is a blowing sound in left apex. He has night sweats, some irritability of stomach, and a tendency to diarrhoea.

January 27: At 10:30 a.m. 0.001 gram lymph was injected. Temperature—10:30 a.m., 37.8° C.; 2 p.m., 39° C.; 7 p.m., 39.8° C.

On the day following there was a secondary reaction reaching 40.8° C.

January 30: Injected 0.002 grams. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 38.6° C.; 7 p. m., 39.2° C.

February 3: Injected 0.003 grams. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 39° C.; 7 p., 39.6° C.

February 6: Injected 0.004 grams. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38.6° C.; 7 p. m., 39.6° C.



February 10: Injected 0.005 grams. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 38.6° C.; 7 p. m., 39.8° C.

February 13: Injected 0.006 grams. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.8° C.; 7 p. m., 39.8° C.

February 16: Injected 0.006 grams. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 39.4° C.; 7 p. m., 38.4° C.

February 19: Injected 0.006 grams. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38.6° C.; 7 p. m., 40.2° C.

February 22: Injected 0.006 grams. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38.6° C.; 7 p. m., 39.4° C. The patient's condition being very feeble and the reactions violent, it was determined to reduce the dose.

Upon the 25th 0.005 grams were injected. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38° C.; 7 p. m., 38.6° C. The patient's hectic symptoms are becoming more pronounced and more violent.

February 28: Injected 0.005 grams. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.6° C.; 7 p. m., 39.6° C.

This injection was followed upon three days by diurnal elevations of temperature to 39.6°.

March 4: Injected 0.005 grams. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 39.2° C.; 7 p. m., 38.2° C.

March 7: Injected 0.005 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.6° C.; 7 p. m., 39.4° C.

March 10: Injected 0.005 gram. Temperature—10:30 a. m., 38.6° C.; 2 p. m., 39.2° C.; 7 p. m., 39.6° C.

March 13: Injected 0.005 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.4° C.; 7 p. m., 38° C.

March 16: Injected 0.005 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 39.6° C.; 7 p. m., 39.6° C.

March 19: Injected 0.005 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 39.4° C.; 7 p. m., 39.6° C.

At this time the patient had become so debilitated, and his general condition so bad that it was deemed imperative to discontinue the treatment. He left the hospital on the 24th. Physical examination showed no change in the size of the diseased areas, but softening and formation of cavities had evidently begun. His condition as regards strength was much worse than upon admission, and it is fair, we think, to say this rapid deterioration was hastened if not caused by the use of the remedy, from the fact that at no time during the treatment did there seem to be the least check to the ravages of the disease. The patient is still alive at his home, but his death is daily expected and can not be long delayed.

#### CASE No. 11.

J. A. Y.; age, 52; nativity, United States; weight, 54.900 kilograms.

For the past two and a half years the patient has suffered more or less at intervals with a violent sore throat, at times enjoying intervals of comparative ease, but generally suffering acute pain, with difficulty of swallowing, and almost total loss of voice. Has also suffered with a distressing cough, and has lost flesh and strength. There is no family history of phthisis of any certainty. About six months ago had some operation performed on his throat of the nature of which he is uncertain, except that "something was removed." Present condition: The patient is an elderly, much-emaciated subject, with a distressed and anxious expression of countenance. He is much prostrated, dyspnoea is extreme, and the respiratory act is accompanied by a sharp, sibilant sound. His voice is a scarcely audible whisper, and phonation is painful, and brings on severe paroxysms of coughing. The throat is so irritable that even under cocaine a laryngoscopic examination is impossible. Examination of the chest shows upon the right side an area of dullness from the clavicle to the

lower margin of the third rib at the anterior axillary line, and to the second rib on the sternal line. There is a disturbance of the vesicular murmur, an increase of bronchial breathing over the upper lobe, and numerous mucous rales over the upper lobe front and back. On the left side the respiration is roughened and uneven, with numerous mucous rales fine and coarse over the upper lobe.

February 10: 10.30 a. m., injected 0.001 gram lymph. Temperature—10:30 a. m., 38° C. Temperature—2 p. m., 38.6° C.; 7 p. m., 39.2° C.

February 13: 10:30 a. m., injected 0.002 gram. Temperature—10:30 a. m., 38.2° C.; 2 p. m., 38.6° C.; 7 p. m., 40.2° C.

February 16: 10:30 a. m., injected 0.003 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 39° C.; 7 p. m., 39.6° C.

February 19: Injected 0.004 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.4° C.; 7 p. m., 40.2° C.

February 22: Injected 0.005 gram. Temperature—10:30 a. m., 37.4° C.; 2 p. m., 39.2° C.; 7 p. m., 40.6° C. At this time the patient seemed somewhat improved, the huskiness of voice markedly diminished. Deglutition was much less painful; appetite has improved, cough has diminished, and the area of dullness is slightly less.

February 25: Injected 0.005 grams. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 38.2° C.; 7 p. m., 38.4° C.

February 28: Injected 0.005 grams. Temperature—10:30 a. m., 38° C.; 2 p. m., 39° C.; 7 p. m., 39.6° C.

This was the last injection administered. The patient suddenly became much worse, the laryngeal symptoms returned with increased severity, swallowing became so painful as to be almost impossible, cough increased, and in a few days the patient lost 3.078 kilograms in weight. It became imperative, therefore, to suspend the treatment and in a few days after, urged by friends, he returned to his home. It has been impossible to learn anything of him since his departure; at that time his death seemed to be imminent, and but a few days off. His condition was certainly worse at the time of his departure than upon his admission.

#### CASE No. 12.

J. W. I.; age 22; nativity, United States; occupation, printer; weight, 55.775 kilograms.

Has been sick for about eight months, though never so seriously as to be confined to bed for more than a day or two at a time. Has had quite a persistent cough, and for the last three months progressive emaciation, hectic fever and night sweats. There is an indistinct and indefinite family history of phthisis on both sides. Present condition: The patient is delicate and fragile in appearance; he is suffering with a troublesome cough, with rather profuse muco-purulent expectoration containing tubercle bacilli in small numbers. Upon the right side there is a small triangular area of dullness, extending from the clavicle with its apex at the third rib, and equally disposed on either side of the mammary line. There is some loss of the vesicular murmur and increase of the bronchial breathing and numerous mucous rales in the upper lobe. Upon the left side there is an area of dullness extending from the clavicle to the third rib, and from midway between sternum and mammary line to anterior axillary line. Over the area there is loss of the vesicular murmur, and the bronchial sound is increased by a soft protracted musical murmur. There are no rales, and the murmur is not changed in position or intensity by coughing. This patient, as will be seen from the above description of physical signs, presented some of the appearances of breaking down of tissue, and was, therefore, submitted to treatment after full explanation of the danger attending it, and with the understanding that the treatment in his case was purely tentative. The progress of his case has shown that the murmur above referred to was due rather to the dilation of the bronchus than to a cavity formed by the softening and elimination of tissue.

February 23: Injected 0.001 gram lymph. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39° C.; 7 p. m., 40.6° C.



February 26: Injected 0.001 gram. Temperature—10:30 a. m., 36.6° C.; 2 p. m., 37.8° C.; 7 p. m., 39.8° C.

February 28: Injected 0.002 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 38.2° C.; 7 p. m., 39.4° C.

March 3: Injected 0.003 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38° C.; 7 p. m., 39.4° C.

March 6: Injected 0.004 gram. Temperature—10:30 a. m., 37.6° C.; 2 p. m., 39° C.; 7 p. m., 39.4° C.

March 9: Injected 0.005 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38.4° C.; 7 p. m., 39.2° C.

March 12: Injected 0.006 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 39.4° C.; 7 p. m., 39.8° C.

March 16: Injected 0.006 gram. Temperature—10:30, 37° C.; 2 p. m., 38.2° C.; 7 p. m., 39.4° C.

March 20: Injected 0.006 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38.4° C.; 7 p. m., 39.2° C.

March 25: Injected 0.007 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 39.2° C.; 7 p. m., 37.2° C.

March 26: A secondary reaction again reaching 39.2° C.

March 28: Injected 0.007 gram. Temperature—10:30 a. m., 37° C.; 2 p. m., 38.4° C.; 7 p. m., 38.6° C.

March 31: Injected 0.007 gram. Temperature—10:30 a. m., 37.8° C.; 2 p. m., 39° C.; 7 p. m., 38.2° C.

April 3: Injected 0.007 gram. Temperature—10:30 a. m., 36.8° C.; 2 p. m., 38.8° C.; 7 p. m., 38.8° C.

April 6: Injected 0.007 gram. Temperature—10:30 a. m., 37.2° C.; 2 p. m., 38.6° C.; 7 p. m., 39.6° C.

April 9: Injected 0.007 gram. Temperature—10:30 a. m., 36.6° C.; 2 p. m., 37.6° C.; 7 p. m., 38.6° C.

April 12: Injected 0.007 gram. No reaction beyond 37.8° C.

April 15: Injected 0.007 gram. No reaction.

April 18: Injected 0.007 gram. No reaction beyond 37.8° C.

April 21: Injected 0.007 gram. No reaction beyond 38° C.

At this time the patient shows marked improvement. The general condition is much improved. He has gained weight, his night sweats have entirely ceased, his cough has almost disappeared, expectoration is scanty, and the last examination of his sputum failed to show any tubercle bacilli. The areas of dullness have diminished more than one-half, the breathing sounds are almost normal, and the patient says he feels almost as well as he ever did, and is sanguine of ultimate recovery. While not cured, it is interesting to note the vast improvement which has taken place in a case which was regarded as unfavorable for the treatment and almost hopeless in its prognosis. The case just related teaches, I think, one of the most important lessons in the whole series as showing the beneficial effect of the remedy upon cases in which, although the symptoms are grave, the disease has not advanced to the destruction of tissue.

The results at which I have arrived in the treatment of this series of cases of tubercle of the lung, complicated in three instances with tubercle of the larynx, may be briefly stated as follows:

Total number of cases treated .....	12
Apparently cured.....	2, or 16.666 per cent.
Much improved.....	1, or 8.333 per cent.
Improved.....	1, or 8.333 per cent.
No improvement.....	2, or 16.666 per cent.
Worse under treatment.....	4, or 33.000 per cent.
Deaths .....	2, or 16.666 per cent.

And further, I desire to formulate and put upon record as my opinion certain conclusions to which I am led by the observation of these cases while under treatment and a study of the figures which represent the results. First, that the tuberculin, or Koch's remedy for tuberculosis, is a potent remedy, and one about which much has been written and more spoken, but which is as yet little known, and consequently to be administered with caution, and under close and careful observation. It is therefore a remedy not fitted for use by the general practitioner, but should only be used in institutions where its effects can be closely and constantly watched. Second, that in the limited number of cases which come under observation, in the incipient stages of the disease, it is beneficial, provided that the disease is not extensive, that softening and breaking down of tissue has not taken place, or the patient's vital forces exhausted by long continued hectic or by disturbances of digestion and the alimentary canal. Third, that its results in tubercle of the larynx are very variable, and its use liable to produce the most distressing and alarming symptoms. Fourth, that in cases where softening has taken place, or the patient is exhausted by any or all of the causes named in proposition number 2, a fatal issue is hastened more or less rapidly by the exhibition of the remedy. Fifth, that in hemorrhagic cases the use of tuberculin is prejudicial and certainly productive of harm, and that most rapidly and violently.

It therefore seems to me that the remedy is of limited applicability, and while the future may have for it an important sphere within the limits which I have endeavored to formulate above, its general results are disappointing both to physician and patient, and does not yield the results which were first claimed for it by popular clamor and irresponsible observers, but which in the light of dispassionate investigation have yielded much disappointment, and possibly loss of life.

#### A CASE OF LUPUS VULGARIS TREATED WITH TUBERCULIN.

D. J.; age, 41; nativity, United States; weight, 62.046 kilograms.

The case is one of seventeen years' standing, though the greater part of its ravages have been accomplished in the past five years. The fleshy tip of the nose is completely destroyed, upon the right side the ala has been destroyed, and there are a few minute points of infiltration at the junction of the nose and cheek. Upon the left side the destruction has been much greater; in addition to the destruction of the ala, the disease has destroyed the muscles and other tissues upon the side of the nose to within a quarter of an inch of the root of the nose. The whole ulcer presents an angry, deep purple, malignant appearance. There have been numerous excavations of irregular shape and varying depth made upon the surface of the ulcer and into the muscular structures of the nose. To all appearances, at the beginning of this treatment, the septum is perfectly sound, though the exposed mucous membrane is intensely congested and very florid in appearance. The bridge of the nose is also a deep purplish red in appearance. The disease has begun to make inroads upon the upper lip, upon which, at its junction with the septum, there is an ulceration having an area equal to that of a small pea; the bottom of this ulcer is covered with a grayish white, indolent-looking slough.

At 10 a. m., February 13, he was injected with 0.001 gram of lymph. Temperature—10 a. m., 37° C.; 2 p. m., 38.4° C.; 7 p. m., 37.8° C. Subsequently there was a secondary reaction which reached 39° C. This was accompanied with much headache, pain in back and limbs, nausea and vomiting. Perspiration was profuse. The ulcer presented the following appearances: The diseased area is highly glazed, the tense appearance has extended onto the cheeks, the lupus looks tense, and to the patient feels hot and throbbing.

February 16: Injected 0.002 gram. Temperature—10 a. m., 37° C.; 2 p. m., 37.8° C.; 7 p. m., 38.8° C.

February 19: Injected 0.003 gram. Temperature—10 a. m., 37.4° C.; 2 p. m., 37.4° C.; 7 p. m., 39.2° C.



February 22: Injected 0.003 gram. Temperature—10 a. m., 37° C.; 2 p. m., 39.6° C.; 7 p. m., 38° 8 C.

February 25: Injected 0.003 gram. Temperature—10 a. m., 37° C.; 2 p. m., 37.4° C.; 7 p. m., 38° 4 C.

February 28: Injected 0.004 gram. Temperature—10 a. m., 37° C.; 2 p. m., 38° C.; 7 p. m., 38° C.

March 3: Injected 0.005 gram. Temperature—10 a. m., 37° C.; 2 p. m., 37.6° C.; 7 p. m., 36° 6 C.

March 6: Injected 0.006 gram. No reaction beyond 37.2° C.

March 9: Injected 0.007 gram. Highest temperature 37.6° C.

March 12: Injected 0.008 gram. No reaction.

March 14: Injected 0.009 gram. Highest temperature 37.6° C.

March 16: Injected 0.010 gram. No reaction. A heavy scab which has been allowed to form over the surface of the ulcer was to-day removed for purposes of observation, and it was found that under it and during a period of ten days extensive destruction of tissue had taken place, the nasal cartilage being exposed, and areas of tissue which had previously been regarded as healthy, especially upon the right side, had broken down. Hydrogen per oxide was applied to the ulcer and a dressing of lanolin applied.

March 18: Injected 0.012 gram. No reaction.

March 20: Injected 0.013 gram. No reaction.

March 22: Injected 0.014. Highest temperature, 37.4° C.

March 25: Injected 0.015 gram. No reaction.

March 29: Injected 0.017 gram. No reaction.

March 30: Injected 0.017 gram. No reaction.

March 31: Injected 0.020 gram. No reaction. At this date the right side has almost entirely skinned over, the septum has regained a normal appearance and color, the exposed cartilage has been recovered, and the integument looks sound and healthy.

From this date the injections were steadily increased in quantity until April 15, when a dose of 0.065 gram was reached, and under which there was a reaction reaching 37.8° C.

On the 11th and 12th the edges of the ulcer were stimulated with nitrate of silver with but little effect.

On April 14 the ulcer had lost its lupoid appearance and seemed to have been converted into an indolent ulcer, the healing of which seemed to have reached a standstill; upon this date, therefore, and with a view to expediting the cure, twenty-one skin grafts were applied to the margin and upon the surface of the ulcer. Of these it was found after the expiration of three days that a few had grown, and a new growth of skin thus started which extends slowly.

April 19: Injected 0.070 gram. No reaction.

April 20: Injected 0.080 gram. No reaction. Sponge grafts were to-day applied to the ulcer.

April 22: Injected 0.090 gram. No reaction.

April 23: The growth of skin over the ulcer shows some progress; more sponge grafts were applied to-day.

April 24: Injected 0.100 gram. No reaction.

April 26: More sponge grafts applied to-day.

April 27: Injected 0.100 gram. No reaction.

April 30: The ulcer to-day presents the following appearance: The right side has skinned over, but there is still a minute fissure at the junction of the ala and cheek; its depth, however, is extremely small. The ulcerated area at the junction of the septum and lip has healed, leaving, however, a depressed cicatrix. Upon the left side the area of the ulcer has diminished—there is a bridge of skin formed across it, dividing its surface into two part. The upper one of these is skinning over, and

appears healed up to the margins of a sponge graft about the size of a pea, which is firmly adhering. Over the lower part a skinning over from the edges is progressing slowly, and the granulations which were somewhat exuberant were cut down by an application of solid sulphate of copper. The excavations upon the surface of the ulcer have all filled up, and to-day the patient is so far improved that I think it may safely be said that the progress of the disease has been arrested and that it only remains to complete the skinning over of the remaining ulcerated area to pronounce him cured. It will be understood that from the treatment of a single case of lupus, and that one of such severity and such long standing, it would be unjustifiable and impossible to attempt to formulate the results. It can only be said that the case just related has been more obstinate in yielding to treatment and slower in showing results than many which have been published, and several which I have had the pleasure of seeing in the practice of others.

I am at a loss to account for this and have no theory to offer in regard to it. I am forced to the conviction, however, that tuberculin can not be regarded as an infallible cure for lupus. Much I think depends upon the duration of the disease and the extent and depth to which the tissues have been invaded. If possible further report will be made upon the final result of this case.

Very respectfully, your obedient servant,

H. D. GEDDINGS,

*Assistant Surgeon, Marine-Hospital Service.*

To the SUPERVISING SURGEON-GENERAL,

*U. S. Marine-Hospital Service.*

## THE IMMIGRATION LAW.

[Circular.]

### AMENDMENT TO IMMIGRATION AND ALIEN CONTRACT-LABOR LAWS.

TREASURY DEPARTMENT,

OFFICE OF THE SECRETARY,

*Washington, D. C., March 13, 1891.*

The following "Act in amendment to the various acts relative to immigration and the importation of aliens under contract or agreement to perform labor," is published for the information of customs officers, immigrant officials, immigrant inspectors, steamship companies, and others:

A. B. NETTLETON,

*Acting Secretary.*

AN ACT in amendment to the various acts relative to immigration and the importation of aliens under contract or agreement to perform labor.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following classes of aliens shall be excluded from admission into the United States, in accordance with the existing acts regulating immigration, other than those concerning Chinese laborers: All idiots, insane persons, paupers or persons likely to become a public charge, persons suffering from a loathsome or a dangerous contagious disease, persons who have been convicted of a felony or other infamous crime or misdemeanor involving moral turpitude, polygamists, and also any person whose ticket or passage is paid for with the money of another or who is assisted by others to come, unless it is affirmatively and satisfactorily shown on special inquiry that such person does not belong to one of the



foregoing excluded classes, or to the class of contract laborers excluded by the act of February twenty-sixth, eighteen hundred and eighty-five, but this section shall not be held to exclude persons living in the United States from sending for a relative or friend who is not of the excluded classes under such regulations as the Secretary of the Treasury may prescribe: *Provided*, That nothing in this act shall be construed to apply to or exclude persons convicted of a political offense, notwithstanding said political offense may be designated as a "felony, crime, infamous crime, or misdemeanor, involving moral turpitude" by the laws of the land whence he came or by the court convicting.

SEC. 2. That no suit or proceeding for violations of said act of February twenty-sixth, eighteen hundred and eighty-five, prohibiting the importation and migration of foreigners under contract or agreement to perform labor, shall be settled, compromised, or discontinued without the consent of the court entered of record with reasons therefor.

SEC. 3. That it shall be deemed a violation of said act of February twenty-sixth, eighteen hundred and eighty-five, to assist or encourage the importation or migration of any alien by promise of employment through advertisements printed and published in any foreign country; and any alien coming to this country in consequence of such an advertisement shall be treated as coming under a contract as contemplated by such act; and the penalties by said act imposed shall be applicable in such a case: *Provided*, This section shall not apply to States and immigration bureaus of States advertising the inducements they offer for immigration to such States.

SEC. 4. That no steamship or transportation company or owners of vessels shall directly, or through agents, either by writing, printing, or oral representations, solicit, invite, or encourage the immigration of any alien into the United States except by ordinary commercial letters, circulars, advertisements, or oral representations, stating the sailings of their vessels and the terms and facilities of transportation therein; and for a violation of this provision any such steamship or transportation company, and any such owners of vessels, and the agents by them employed, shall be subjected to the penalties imposed by the third section of said act of February twenty-sixth, eighteen hundred and eighty-five, for violations of the provision of the first section of said act.

SEC. 5. That section five of said act of February twenty-sixth, eighteen hundred and eighty-five, shall be, and hereby is, amended by adding to the second proviso in said section the words "nor to ministers of any religious denomination, nor persons belonging to any recognized profession, nor professors for colleges and seminaries," and by excluding from the second proviso of said section the words "or any relative or personal friend."

SEC. 6. That any person who shall bring into or land in the United States by vessel or otherwise, or who shall aid to bring into or land in the United States by vessel or otherwise, any alien not lawfully entitled to enter the United States shall be deemed guilty of a misdemeanor, and shall, on conviction, be punished by a fine not exceeding one thousand dollars, or by imprisonment for a term not exceeding one year, or by both such fine and imprisonment.

SEC. 7. That the office of superintendent of immigration is hereby created and established, and the President, by and with the advice and consent of the Senate, is authorized and directed to appoint such officer, whose salary shall be four thousand dollars per annum, payable monthly. The superintendent of immigration shall be an officer in the Treasury Department, under the control and supervision of the Secretary of the Treasury, to whom he shall make annual reports in writing of the transactions of his office, together with such special reports, in writing, as the Secretary of the Treasury shall require. The Secretary shall provide the superintendent with a suitably furnished office in the city of Washington, and with such books of record and facilities for the discharge of the duties of his office as may be necessary. He shall have a chief clerk, at a salary of two thousand dollars per annum, and two first-class clerks.

SEC. 8. That upon the arrival by water at any place within the United States of any alien immigrants it shall be the duty of the commanding officer and the agents of the steam or sailing vessel by which they came to report the name, nationality, last residence, and destination of every such alien, before any of them are landed, to the proper inspection officers, who shall thereupon go or send competent assistants on board such vessel and there inspect all such aliens, or the inspection officers may order a temporary removal of such aliens for examination at a designated time and place, and then and there detain them until a thorough inspection is made. But such removal shall not be considered a landing during the pendency of such examination. The medical examination shall be made by surgeons of the Marine-Hospital Service. In cases where the services of a Marine-Hospital surgeon can not be obtained without causing unreasonable delay the inspector may cause an alien to be examined by a civil surgeon and the Secretary of the Treasury shall fix the compensation for such examination. The inspection officers and their assistants shall have power to administer oaths, and to take and consider testimony touching the right of any such aliens to enter the United States, all of which shall be entered of record. During such inspection after temporary removal the superintendent shall cause such aliens to be properly housed, fed, and cared for, and also, in his discretion, such as are delayed in proceeding to their destination after inspection. All decisions made by the inspection officers or their assistants touching the right of any alien to land, when adverse to such right, shall be final unless appeal be taken to the superintendent of immigration, whose action shall be subject to review by the Secretary of the Treasury. It shall be the duty of the aforesaid officers and agents of such vessel to adopt due precautions to prevent the landing of any alien immigrant at any place or time other than that designated by the inspection officers, and any such officer or agent or person in charge of such vessel who shall either knowingly or negligently land or permit to land any alien immigrant at any place or time other than that designated by the inspection officers, shall be deemed guilty of a misdemeanor and punished by a fine not exceeding one thousand dollars, or by imprisonment for a term not exceeding one year, or by both such fine and imprisonment.

That the Secretary of the Treasury may prescribe rules for inspection along the borders of Canada, British Columbia, and Mexico, so as not to obstruct or unnecessarily delay, impede, or annoy passengers in ordinary travel between said countries: *Provided*, That not exceeding one inspector shall be appointed for each customs district, and whose salary shall not exceed twelve hundred dollars per year.

All duties imposed and powers conferred by the second section of the act of August third, eighteen hundred and eighty-two, upon State commissioners, boards, or officers acting under contract with the Secretary of the Treasury shall be performed and exercised, as occasion may arise, by the inspection officers of the United States.

SEC. 9. That for the preservation of the peace and in order that arrests may be made for crimes under the laws of the States where the various United States immigrant stations are located, the officials in charge of such stations as occasion may require shall admit therein the proper State and municipal officers charged with the enforcement of such laws, and for the purposes of this section the jurisdiction of such officers and of the local courts shall extend over such stations.

SEC. 10. That all aliens who may unlawfully come to the United States shall, if practicable, be immediately sent back on the vessel by which they were brought in. The cost of their maintenance while on land, as well as the expense of the return of such aliens, shall be borne by the owner or owners of the vessel on which such aliens came; and if any master, agent, consignee, or owner of such vessel shall refuse to receive back on board the vessel such aliens, or shall neglect to detain them thereon, or shall refuse or neglect to return them to the port from which they came, or pay the cost of their maintenance while on land, such master, agent, consignee, or owner shall be deemed guilty of a misdemeanor, and shall be punished by a fine not less than three hundred dollars for each and every offense; and any such vessel shall not have clearance from any port of the United States while any such fine is unpaid.



SEC. 11. That any alien who shall come into the United States in violation of law may be returned as by law provided, at any time within one year thereafter, at the expense of the person or persons, vessel, transportation company, or corporation bringing such alien into the United States, and if that can not be done, then at the expense of the United States; and any alien who becomes a public charge within one year after his arrival into the United States from causes existing prior to his landing therein shall be deemed to have come in violation of law and shall be returned as aforesaid.

SEC. 12. That nothing contained in this act shall be construed to affect any prosecution or other proceeding, criminal or civil, begun under any existing act or any acts hereby amended, but such prosecution or other proceedings, criminal or civil, shall proceed as if this act had not been passed.

SEC. 13. That the circuit and district courts of the United States are hereby invested with full and concurrent jurisdiction of all causes, civil and criminal, arising under any of the provisions of this act; and this act shall go into effect on the first day of April, eighteen hundred and ninety-one.

Approved, March 3, 1891.

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**NOTIFICATION TO STATE HEALTH AUTHORITIES OF IMMIGRANTS  
ARRIVING AT NEW YORK FROM INFECTED LOCALITIES OR VES-  
SELS—CORRESPONDENCE RELATING THERETO.**

TREASURY DEPARTMENT,  
OFFICE SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,  
*June 10, 1891.*

SIR: I have the honor to transmit herewith a publication known as "Public Health in Minnesota" (April, 1891), published by the board of health of that State, and respectfully invite your attention to an article on pages 13, 14, and 15 upon "Seaboard quarantine and the occurrence of infectious diseases in Minnesota."

The subject of the importation of smallpox and other diseases into interior States by means of the baggage of immigrants, and the immigrants themselves, arriving at other ports, and particularly New York, has been frequently commented upon by State health officers, and there is no doubt as to the desirability of furnishing to the States to which the immigrants and their baggage are bound a list of said persons when they come from vessels which, either on voyage or at time of arrival, have been infected, or when they come from ports where contagious diseases prevail.

A good beginning in this matter could be made by giving this information at least to the one State whose officers have corresponded with the Bureau concerning it, and I have therefore respectfully to recommend that the superintendent of immigration at New York be instructed to transmit to the secretary of the State board of health, Red Wing, Minn., a list of the immigrants who pass through New York with Minnesota as their destination whenever these immigrants come from infected or suspected localities or ships. The superintendent of immigration, or his medical officer, can derive the necessary information regarding infected localities from the printed abstract of sanitary reports, which are sent to him weekly by this Bureau, and regarding infected vessels, or vessels on which any contagious disease has appeared en voyage, from the local quarantine officer, Dr. W. M. Smith, whose boarding station at Clifton, Staten Island, is connected with New York by telegraph.

I have the honor to remain, very respectfully, yours,

WALTER WYMAN,

*Supervising Surgeon-General Marine-Hospital Service.*

The Hon. SECRETARY OF THE TREASURY.

OFFICE U. S. SUPERINTENDENT OF IMMIGRATION, BARGE OFFICE,  
*New York, August 6, 1891.*

SIR: Referring to your letter of August 5, 1891, I have the honor to state that since your letter of June 10, 1891, was referred to me, I have regularly notified the secretary of the State board of health of Minnesota whenever any immigrants arriving from infected ports or upon infected vessels had the State of Minnesota as their destination.

Very respectfully,

J. A. TONNER,  
*Surgeon in Charge.*

The SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,  
*Washington, D. C.*

TREASURY DEPARTMENT,  
 OFFICE SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,  
*August 15, 1891.*

DEAR DOCTOR: I have the honor to inclose herewith copies of correspondence with regard to notification to yourself of the arrival in New York of immigrants from infected vessels or places with the State of Minnesota as their destination. Will you please to inform me whether such notification as furnished is of material benefit, and will you kindly transmit to me an additional copy of "Public Health in Minnesota" for April, 1891, the copy received at this office having been forwarded to the Secretary of the Treasury.

Respectfully yours,

WALTER WYMAN,  
*Supervising Surgeon-General Marine-Hospital Service.*

CHARLES N. HEWITT, M. D.,  
*Secretary State Board of Health, Red Wing, Minn.*

STATE OF MINNESOTA,  
 STATE BOARD OF HEALTH AND VITAL STATISTICS,  
 OFFICE OF SECRETARY AND EXECUTIVE OFFICER,  
*Red Wing, September 18, 1891.*

DEAR DOCTOR: \* \* \* As to the subject-matter of your letter, if you will refer to your files you will find a note from me to Gen. Hamilton, dated April 7, 1891, asking if notification could not be had through your service in New York Harbor, and again on May 4. May 11 he replied that my letter had been referred to the Secretary on April 13, with a report on the execution of the immigrant act.

The first notification by the Commissioner of Immigration, James R. O'Beirne (by whom all subsequent reports—total, eight to date—have been signed) was June 24, 1891.

These notifications reach me some days before the arrival of the immigrants, and as I am in direct communication with all of our 1,575 boards of health in every township, village, and city, they are promptly notified and the result has been as I anticipated, a much easier feeling as respects the danger of immigration. I am greatly obliged for the hearty coöperation of your Bureau and service. \* \* \*

Yours, truly,

CHARLES N. HEWITT, M. D.  
*Secretary and Executive Officer.*

To the SUPERVISING SURGEON-GENERAL  
*Marine-Hospital Service, Washington, D. C.*



## DISINFECTION OF RAGS FROM MARSEILLES.

TREASURY DEPARTMENT,  
OFFICE SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,  
*Washington, D. C., September 15, 1891.*

SIR: I beg leave hereby to refer to the conference, to which I was summoned recently, with the Acting Secretary of the Treasury and the United States consul from Marseilles, the last named urging personally the views which he had previously expressed in letters, with regard to the necessity for disinfection of all rags shipped from Marseilles to the United States. The matter having been referred to me, I have to say that I have given it serious attention, not only with regard to the port of Marseilles, but to all other European ports, and have had repeated interviews with the Solicitor of the Treasury and with the chief of the customs division regarding the laws bearing upon the subject.

A full exposition of the rag question in all its bearings, the vastness of the rag industry, the conveyance of disease by rags, the necessity for their disinfection, and the relation of the General Government to the States with regard to restrictive measures, would require too much time and space for your consideration at the present time. Acting, however, upon the information received from the consul at Marseilles, and upon his specific request, I have to recommend that collectors of customs be directed to refuse entry to all the importations of rags from Marseilles unless furnished with a certificate from the United States consul at Marseilles that the rags have been disinfected in accordance with the rules adopted by the Department, or a certificate to the like effect from a Government or local quarantine officer of the United States. These rags, without disinfection, may be excluded under the law of April 29, 1878, on account of the danger of their bearing infection, the laws and regulations of the several States prohibiting infected merchandise. This danger will be considered only removed when a certificate of disinfection has been furnished.

The necessity of this rule with regard to Marseilles is made apparent by communications received from the United States consul, C. B. Trail, who states that many of the rags which are received at Marseilles, and are there rebaled, come from different parts of Asiatic Turkey, where at the present time cholera is epidemic, and where it is known positively that many of these rags are gathered. At Marseilles, which is a great entrepôt and point of rebaling, it is impossible to clearly distinguish between the rags from infected and noninfected localities.

In general, as was stated in the Weekly Abstract of Sanitary Reports, published by this Bureau March 27, 1891, the onus of responsibility in the matter of rag importation is upon the health authorities at the port of entry or point of destination. I am informed, however, by Consul Trail that, by reason of a difference of practice and of rules at the several adjoining ports of entry in the different States, some shippers at Marseilles are obliged to furnish certificates of disinfection by the local health officers of the United States, while others are not, and the quarantine officer at a given port, though himself wishing to demand certificate of disinfection, knowing that a neighboring port will not demand it, will admit the rags without such disinfection. On this account rags are now being imported into the United States without a previous disinfection, which the shippers would readily agree to perform provided all were compelled to do so. On account, therefore, of this want of harmony of action between the local authorities, and on account of the prevalence of cholera in the East, it is deemed proper that the Government should exercise its authority, and that the order as recommended should be issued.

Very respectfully yours,

WALTER WYMAN,

*Supervising Surgeon-General Marine-Hospital Service.*

The Hon. SECRETARY OF THE TREASURY.

[Circular.]

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,  
*Washington, D. C., October 9, 1891.*

*To Collectors and other Officers of the Customs:*

The act, approved April 29, 1878, entitled "An act to prevent the introduction of contagious or infectious diseases into the United States," provides that "no vessel coming from any foreign port or country where any contagious or infectious disease exists, nor any vessel conveying infected merchandise, shall enter any port of the United States or pass the boundary line between the United States and any foreign country except in such manner as may be prescribed under said act."

It having been shown that an epidemic of cholera prevails in various provinces of Asiatic Turkey; that old rags are collected in these provinces and shipped to Marseilles, France, there to be rebaled and reshipped to the United States; that therefore rags from Marseilles, unless disinfected, are liable to import contagious disease into the United States, and that, while the laws of the several States forbid the admission of infected merchandise, a want of conformity of the several State and municipal regulations may cause a laxity in the enforcement of restrictive measures; therefore it is ordered that no rags imported from Marseilles shall be admitted to entry unless accompanied by a certificate from the United States consul at Marseilles that they have been disinfected in accordance with the regulations of this Department, or by a certificate to the like effect from a medical officer of the Marine-Hospital Service or State or local quarantine officer.

This circular will take immediate effect, but will not apply to rags afloat on or before the date of its issue.

For disinfection one of the following methods will be used:

1. Boiling in water not less than one hour; all rags to be unbaled for this purpose.
2. Exposure to steam not less than one hour, the steam to be of a temperature not less than 100° C. (212° F.), nor greater than 115° C. (239° F.).
3. Exposure not less than six hours to sulphurous acid gas, made by burning not less than 3 pounds of roll sulphur to each 1,000 cubic feet of space.
4. Exposure (rags unbaled) not less than six hours to an atmosphere containing 3 per cent of sulphurous acid gas liberated from its liquid state (liquid sulphur dioxide).

In methods No. 2, No. 3, and No. 4 the rags must be well scattered upon racks, or so arranged that they can from time to time be turned in such a manner that all shall be exposed to the steam or gas.

CHARLES FOSTER,  
*Secretary.*

## CORRESPONDENCE REGARDING THE SEGREGATION OF LEPERS IN THE UNITED STATES.

BOARD OF HEALTH,  
*Philadelphia, October 31, 1890.*

SIR: I write to ask your opinion as to the proper future disposition of cases of leprosy which will from time to time be discovered in various parts of the country. Quite a number of these cases have been recently reported, and there is reason for believing that a still greater number are constantly mingling with the population.

It is the consensus of opinion that persons suffering from leprosy, on account of its peculiar nature, its chronic character, and the abhorrence with which the public view it, should be removed from society and humanely cared for and treated in places specially set apart for this object. It is impracticable for towns or cities or



even States to provide such places, on account of the expense, the number of cases not being large enough to warrant the necessary expenditure. And what is finally to be done with the lepers that are now illy provided for, and those that will be discovered in the future? They can not be treated in general hospitals, except for a very limited time. It is difficult to return them to their native countries, though most of them are unnaturalized foreigners. Where there are hospitals for contagious diseases (and few places have such hospitals) temporary provision might be made for them. Here they must necessarily be secluded in unfrequented apartments, denied intercourse with relatives and friends, shut out from the world, denied the freedom of out-door exercise because of the popular aversion to the disease, and doomed to a life of suffering, and, what is worse, of mental anguish over their deserted and hopeless state. What is to become of lepers who may happen to be discovered in places which have not even such inadequate means for their detention?

As you well know, there are probably to-day lepers in every large city in the country, which means the necessity of providing as many places for their treatment. Barring the question of expense, it is not wise to multiply these settlements. As it is, the public must be protected at the expense of the liberty and happiness of these unfortunate subjects, whose condition could be greatly ameliorated by their segregation in one or more well-appointed stations in convenient parts of the country.

The suggestion of my friend, Dr. Duhring, I think a good one. It is that the Government should provide places where persons afflicted with leprosy could be separated from the public and humanely cared for and treated in such a manner as not to deprive them entirely of the comforts and enjoyments of life. The protection of the public and the humane management of the unfortunate subjects of this disease are the twofold objects that would be accomplished by this course. The expense would be comparatively small, while the relief to communities, the advantages to the sick, and the gain on the side of humanity would be very great.

Within a few years four cases of leprosy have been reported in Philadelphia and vicinity. Two of these, after having been isolated in the municipal hospital for contagious diseases for nearly a year, were returned to their home in South America. A third case is now confined in the hospital. The remaining case was discovered a few days ago, and is located at Chester, Pa. It is a fact that we have not, and are not likely to have, a suitable place for the care of these cases. If the Government had one or more leper stations the question would be solved to the advantage of the community and of the patients.

I think the matter is of sufficient importance for the Government to act upon. You have already considered the subject of leprosy in connection with the national quarantine regulations. Will you kindly advise me what, in your opinion, will be the best disposition to make of lepers who elude quarantine and locate in different parts of the country? Is it within the province of the United States Marine Hospital Service, as the executive of the national health laws, to promote a plan for the solution of this question, which interests the whole country?

Very respectfully, your obedient servant,

WILLIAM H. FORD,  
*President Board of Health.*

To the SUPERVISING SURGEON-GENERAL, U. S. MARINE HOSPITAL SERVICE.

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TREASURY DEPARTMENT,  
OFFICE OF THE SUPERVISING SURGEON-GENERAL,  
MARINE HOSPITAL SERVICE,

*Washington, D. C., November 12, 1890.*

SIR: I have the honor to acknowledge the receipt of your letter of October 31, answer to which, I regret to say, from pressure of business, has been unavoidably delayed.

I quite agree with you as to the propriety of the segregation of a place for lepers, and so advocated in my address as chairman of the section of State medicine of Nashville last May, but as you will see from a publication in this week's Abstract, there is great diversity of opinion among our own people as to what should be done. Consequently, such an institution would have to be for the voluntary treatment of such lepers as were sent from States not having laws providing for their segregation, and involuntary only from those States where a specific law was provided, under the national law, to prevent the spread of contagious diseases from one State to another.

I suppose a regulation can be framed to prevent lepers from traveling, but great expense would be entailed, and there is now no law that would entitle us to restrain them from their personal liberty, except at the quarantine stations. We can prevent lepers from coming into the United States under existing regulations, but we can take no action in regard to those already here, except in the general manner indicated, except in case of aliens.

I have no doubt that if the boards of health so desire, Congress could be induced to pass a law providing for an institution wherein these unfortunate cases can be treated and humanely cared for, but it will require legislation to enable anything to be done in this regard.

Respectfully yours,

JOHN B. HAMILTON,  
*Supervising Surgeon-General, Marine Hospital Service.*

W. H. FORD, M. D.,  
*President Board of Health, Philadelphia, Pa.*

#### COMMEMORATIVE.

JOHN FREDERICK GROENEVELT.

TREASURY DEPARTMENT,  
U. S. MARINE HOSPITAL SERVICE,  
OFFICE OF THE SUPERVISING SURGEON-GENERAL,  
July 7, 1891.

*To the medical officers and acting assistant surgeons of the U. S. Marine Hospital Service:*

It becomes my sad duty to announce the death from yellow fever of Assistant Surgeon John F. Groenevelt, at the United States quarantine station, Chandeleur Islands, Gulf of Mexico. He was taken sick on the 18th of June, while in the active performance of quarantine duty, and died on the night of the 29th.

Assistant Surgeon Groenevelt was born in Leipzig, Germany, July 19, 1865, of American parents. On his father's side he was a descendant of Baron Arnold de Groenevelt, of Netherland fame. His mother is a native of Louisiana. In 1878, at the age of thirteen, he entered the Tulane University, in New Orleans, and remained for seven years a student in its academic and collegiate departments, during which time he received the Greek medal, the Latin medal, the medal for mathematics, and the ancient-history medal. In 1884 he received the degree of Bachelor of Arts, and was elected president of the academic corps by the students, a place requiring tact and firmness in enforcing the discipline of the institution. In 1885 he received the degree of Master of Arts, and at once began the study of medicine under Dr. F. Loeber, of New Orleans, as preceptor. After four years of study in the medical department of Tulane University, he was graduated April 23, 1889. In 1886, while still a student, he was made interne of Touro Infirmary, and in 1887, after a competitive examination, was appointed interne in the Charity Hospital, of New Orleans, which position he filled with credit for a period of sixteen months, resigning to accept a similar position in the U. S. Marine Hospital, in the same city. Subsequently he accepted



a remunerative offer as physician to a portion of the engineer force of the Mississippi River Commission, and was stationed at the Government works on the Atchafalaya River.

He was appointed assistant surgeon of the Marine Hospital Service July 11, 1889, after a competitive examination, passing No. 1 in a class of twenty-six candidates.

His record in the service from that date is as follows:

*July 20, 1889.*—Ordered to Gulf quarantine station for temporary duty.

*August 3, 1889.*—Relieved from duty at Gulf quarantine; ordered to Mobile, Ala., for temporary duty.

*August 8, 1889.*—Relieved from duty at Mobile, Ala.; ordered to South Atlantic quarantine.

*November 5, 1889.*—Relieved from duty at South Atlantic quarantine; ordered to Marine Hospital, New York.

*October 23, 1890.*—To report to Superintendent of Immigration for temporary duty.

*November 24, 1890.*—To rejoin station, New York.

*February 7, 1891.*—To proceed to Cape Charles quarantine for temporary duty.

*April 13, 1891.*—To rejoin station, New York.

*May 22, 1891.*—Relieved from duty at New York; ordered to Gulf quarantine station.

As an officer Assistant Surgeon Groenevelt was held in high esteem, both by those under whose immediate command he served and by the Department. His ability is illustrated by the varied and important trusts that were confided to him, and his courage by his readiness for service in the position in which he lost his life. He had shown an inclination and special aptitude for quarantine duty, and in this branch of the service his loss, for public reasons, is particularly deplored.

Personally Dr. Groenevelt was endowed with a high sense of honor, a general culture, and scientific attainments that won for him the attachment and respect of those with whom he was brought in contact. To his bereaved father and mother and other near relatives, I have assumed to extend the sympathy of our corps. The service has lost a young and brilliant officer and the public an able and earnest devotee in the cause of public health.

It is hereby ordered that the flags at the Gulf quarantine station, Chandeleur Island, be kept at half-staff and half-mast for a period of thirty days, and that the officers there on duty wear the usual badge of mourning for the same period of time

By direction of the Secretary of the Treasury:

WALTER WYMAN,

*Supervising Surgeon-General, U. S. Marine Hospital Service.*





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SPECIAL REPORTS, MEDICAL AND SURGICAL.,

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## UNUNITED FRACTURE OF HUMERUS RESECTION— RECOVERY.

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By HENRY W. SAWTELLE, *Surgeon U. S. Marine Hospital Service.*

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Capt. W. S. W., age 32 years; nativity, Maine; was transferred from Belfast, Me., to the U. S. Marine Hospital, Portland, Me.; and admitted December 1, 1890; discharged April 28, 1891.

He stated that when off Lewes, Del., on the 28th of September, 1890, he sustained a fracture of the left humerus, at the lower third. The injured limb was placed in splints, and he returned to his home in Belfast. According to instructions the dressings were not removed until about the middle of November, when the bone was found ununited.

Upon admission there was firm ankylosis of elbow joint and atrophy of the muscles of the arm in addition to the ununited fracture of humerus.

Under electricity and massage the ankylosis and atrophy of muscles improved, and March 5, 1891, a resection was made with antiseptic precautions. The patient having been placed under the influence of ether the bone was exposed at the fractured point by an incision 10 centimeters in length and about 10 centimeters of each extremity sawn off; three holes were drilled through the ends and the fragments brought into contact by stout catgut ligatures. The wound was closed with catgut sutures and covered with sublimate gauze, and the limb placed in plaster of Paris, the shoulder being fixed.

A window was cut in the bandage on the seventh day. Wound healed by primary union.

There was some congestion and slight oozing of serum at the lower stitch, due to pressure of bandage at one point, which was relieved upon removing the cause.

April 28, 1891, bandage removed to-day and the bone found firmly united.

## CELLULO - CUTANEOUS ERYSIPELAS, INVOLVING HAND, FOREARM, AND ARM—SKIN GRAFTING—RECOVERY.

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By HENRY W. SAWTELLE, *Surgeon, U. S. Marine-Hospital Service.*

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J. J.; age, twenty-four years; a vigorous man; nativity—Norway; was admitted to the U. S. Marine Hospital, Portland, Me., from the U. S. revenue cutter *Woodbury*, October 24, 1890; discharged, April 20, 1891.

Nine days prior to admission, while engaged in cutting rope with an ordinary sailor's knife, he accidentally cut the left ring finger on the dorsal surface at the first phalangeal articulation. The wound was very slight, and he paid no attention to it. Four days subsequent he was seized with a chill, followed by febrile movements, after which the paroxysm recurred several times, and he had considerable pain in the finger and hand. Upon arrival at the hospital the hand and forearm were swollen, tense, and extremely painful, the pain extending to the axilla. The inflammation advanced rapidly, and on the following day the arm was likewise involved nearly to the shoulder. Temperature, 39.6° C. Free incisions were made to relieve tension at various points, which gave exit to more or less serum from the areola spaces. The whole limb was enveloped in sublimate gauze, and this was kept moist with a sublimate solution 1-5000.

Iron and quinine ordered with small doses tincture of aconite to control the action of the heart. Milk diet. In the course of a few days livid patches and the characteristic soft boggy feeling imparted on pressure indicated extensive involvement of the connective tissue. The incisions already made were enlarged and with forceps and scissors large masses of necrotic connective tissue were removed from time to time from the hand up to the superior third of the arm. The parts were thoroughly cleansed twice daily. The undermined skin thus left without proper nutrition became gangrenous and the diseased portions were trimmed off at different times leaving the limb finally denuded of skin and connective tissue, exposing the muscles to the extent of about two-thirds of its entire surface.

The tendons of the extensor communis digitorum were also destroyed in the gangrenous process. At the bend of the elbow over the median cephalic and basilic veins, a portion of the integument about the size of a quarter of a dollar, being connected by vessels and nerve filaments, retained its vitality though the connective tissue under it was destroyed. Thorough cleanliness of this patch was maintained by carefully enveloping it with sublimate gauze separately, and it was subsequently utilized as a graft. The outlines of this patch are shown in the accompanying photograph.

November 26, skin grafting commenced; six grafts clipped from the right arm and inserted into the granulations at about three-quarters of an inch apart after the method suggested by the late Prof. Hodgen of St. Louis.

This operation was repeated at intervals of several days until the whole surface was planted. April 20, 1891, wound entirely healed over though there is yet con-



siderable stiffness of the fingers and elbow, but, under daily massage, the limb is gaining slowly in power and usefulness. Shortly after leaving the hospital he returned to duty on board ship.

June 5, 1891, he called at the hospital office and a photograph of the limb was ordered which accompanies this report.

The points where the skin grafts were implanted are well shown in the cut by the pitted surface, particularly at the upper portion of arm. The scar on the ring finger marks the seat of the original wound. Upon inspection at this date the stiffness of elbow and fingers heretofore noted has decreased considerably. An interesting feature in this case worthy of remark is the fact that notwithstanding the extensive involvement of the connective tissue in suppuration there was no sign at any time of septicæmia.

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STUDIES IN SERVICE STATISTICS, III.

1. Diseases of the circulatory system—2. The frequency of heart clots.

By Passed Assistant Surgeon CHARLES E. BANKS, *U. S. Marine-Hospital Service.*

In pursuance of instructions from the Supervising Surgeon-General, a continuation of the studies in service statistics which appeared in the reports for 1888 (p. 224) and 1890 (p. 143) is herewith submitted. The special and favorable notices which the previous "studies" have received from the current medical journals may be a justification of the original design of the compiler, and their continuation a confirmation of the views of the Surgeon-General that the valuable material embodied in our annual reports in the past should be collated for the benefit of students of medicine, particularly in the branches of geography and demography.

1. DISEASES OF THE CIRCULATORY SYSTEM.

The subject selected for consideration in this article relates to the diseases of the circulatory system to which the sailor is liable, and the period of time covered in the survey of the statistics is a decade, 1881-1890, inclusive. During that period, of the 431,264 cases of all classes treated, 5,291 have been diseases of the circulatory system—an average of 529 yearly, representing a ratio of 12.2 cases in the 1,000 of all classes of disease in the sailor which we are called upon to treat. This is not such a large proportion as one would be led to expect from the character of his occupation. A tabulation by our geographical districts will show where the cases have been located, the ratio in each district, the mortality, and the death rate.

TABLE I.—*Geographical distribution of circulatory diseases, 1881-1890.*

	Total cases treated.	Circulatory diseases.	Ratio to all cases.	Mortality.	Death rate.
North Atlantic.....	38,824	617	1.5	37	5.1
Middle Atlantic.....	50,091	824	1.6	62	7.5
South Atlantic.....	75,466	863	1.1	37	4.2
Gulf.....	49,095	620	1.2	33	5.3
Ohio.....	51,135	431	0.8	20	4.6
Mississippi.....	43,720	408	0.9	41	10.0
Great Lakes.....	95,185	1,066	1.1	37	3.4
Pacific.....	27,748	462	1.6	71	15.3
Total.....	431,264	5,291	1.2	338	6.3

From this table we observe one prominent fact, the high ratio of causes of circulatory diseases treated in the district of the Pacific, viz, 16 in the 1,000, and this condition is accentuated by the death rate, 153 in the 1,000, or more than twice the rate in any other section and considerably more than twice the average death rate



throughout the country. This interesting and perhaps instructive evidence may be further followed when examining as far as we can from statistics the factors which enter into this condition. In the beginning it will be advantageous to inspect a consolidated table of the classes of cases of disease of the circulatory system treated during the statistical period. This table will show the list of such diseases by districts, with the totals, mortality and death rate in each form of this class of disease.

TABLE II.—*Consolidated table, 1881-1890.*

	North At- lantic.	Middle At- lantic.	South At- lantic.	Gulf.	Ohio.	Mississippi	Great Lakes.	Pacific.	Total.	Mortality.	Ratio of mor- tality.
All diseases treated	38,824	50,091	75,466	49,095	51,135	43,720	95,185	27,748	431,264	-----	-----
Hydropericardium	3	1	3	-----	1	2	2	-----	12	0	.0
Pericarditis	21	12	22	6	3	7	38	13	122	5	4.1
Eudocarditis	16	10	15	14	25	8	40	2	130	14	10.7
Valve disease	326	417	397	301	160	204	406	243	2,454	234	9.5
Aortic	70	62	78	67	19	51	82	88	517	69	13.1
Metral	201	180	227	124	85	78	232	74	1,201	83	6.9
Pulmonary	-----	1	-----	-----	-----	-----	3	-----	4	0	0
Tricuspid	-----	1	2	-----	1	-----	2	2	8	2	25
Clots in heart	-----	-----	-----	-----	-----	1	-----	-----	1	1	100
Hypertrophy	33	44	17	38	33	9	38	11	223	8	3.6
Fatty degeneration	4	5	11	11	3	-----	21	7	63	3	4.7
Dilatation	18	26	5	6	2	-----	22	8	87	6	.7
Cyanosis	-----	1	-----	-----	-----	-----	-----	2	3	0	.0
Angina	14	23	25	11	4	5	17	9	108	0	.0
Syncope	-----	3	3	-----	-----	-----	2	3	11	1	.9
Palpitation	62	130	184	119	56	82	221	49	903	1	.1
Degeneration of ar- teries	1	2	12	3	1	-----	6	6	31	3	9.7
Aneurism	24	52	65	41	29	29	56	66	362	59	16.29
Obstruction of arter- ies	1	7	-----	3	-----	-----	2	2	15	1	6.6
Arteritis	1	-----	-----	-----	-----	-----	-----	1	2	0	.0
Phlebitis	1	3	7	1	2	5	9	3	31	0	.0
Thrombosis	1	3	3	1	1	-----	1	-----	10	0	.0
Vascular tumor	-----	-----	1	-----	-----	-----	-----	-----	1	0	.0
Aneurismal varix	-----	-----	-----	-----	-----	-----	1	-----	1	0	.0
Varicose veins	92	84	94	63	111	56	184	37	721	2	.7
	617	824	863	820	431	408	1,066	462	5,291	338	6.3

The above table shows the marked preponderance of valvular lesions, 2,454 cases out of 5,291, which constitutes over 46 per cent of all the circulatory diseases. Next in prominence of the organic form of morbid change comes the aneurismal class, numbering 362, or 6.8 per cent of the total. The experience in these two principal forms of circulatory disease in the several geographical districts will further show how prominently the Pacific region enters into the statistical problem.

TABLE III.—*Consolidated table showing valvular diseases by districts.*

	Total of all cases.	Valvular diseases.	Mortal- ity.	Death rate.
North Atlantic	38,824	326	28	8.5
Middle Atlantic	50,091	417	42	10.0
South Atlantic	75,466	397	24	6.0
Gulf	49,095	301	24	7.9
Ohio	51,135	160	13	8.0
Mississippi	43,720	204	34	11.7
Great Lakes	95,185	406	22	5.4
Pacific	27,748	243	47	19.0
Total	431,264	2,454	234	9.5

The average death rate from valvular disease throughout the service districts is seen to be 9.5 per cent, while in the Pacific district the rate is just twice as high, being 19 per cent, which is a striking difference. The next section in the high mortality column is the district of Mississippi, which shows 11.7 per cent, and the lowest is the Great Lakes, with 5.4 per cent. The following table exhibits the experience of the service (by the same geographical districts) in cases of aneurism.

TABLE IV.—*Consolidated table showing aneurism by districts.*

	Total of all cases.	Cases of aneurism.	Ratio to all cases.	Mor- tality.	Death rate.
North Atlantic.....	38,824	24	.006	4	16.6
Middle Atlantic.....	50,091	52	.013	10	19.2
South Atlantic.....	75,466	65	.008	9	13.6
Gulf.....	49,095	41	.008	5	12.1
Ohio.....	51,135	29	.005	4	13.7
Mississippi.....	43,720	29	.006	3	10.3
Great Lakes.....	95,185	56	.005	6	10.7
Pacific.....	27,748	66	.021	18	27.2
Total.....	431,264	362	.008	59	16.29

Here we find repeated the same strange story of predominance and fatality in the district of the Pacific. It trebles the average of all other sections in the ratio of such cases to all diseases treated, and easily leads the next highest section (Middle Atlantic) with its death rate of 27.2 per cent. This peculiar local condition as related to aneurism was noticed by Surg. John B. Hamilton, U. S. Marine Hospital Service, in his monograph on the "Causes of aneurism" printed in the American Journal of the American Sciences Oct, 1885. In that paper he quoted the service statistics up to date and added confirmatory testimony from the local health reports and the results of the census for 1880 as gathered for the medical section. I am unable to assign any satisfactory reason for this preponderance of valvular and arterial disease and the excessive mortality among the sailors in that particular section of the United States. Perhaps some studies of the barometric conditions obtaining on the Pacific slope and its effect upon blood pressure may be a means towards determining the evident relations of the two.

The operative procedures for the cure of aneurisms as shown by the annual reports do not indicate much surgical interference, if we may judge of the sixteen operations in a period of ten years listed in the consolidated tables of surgical operations.

TABLE V.—*Operations for aneurism, 1881-1890.*

Artery involved.	Recovered.	Not suc- cessful.	Death.	Ligation.	Pressure.
Femoral.....	5	1	1	5	2
Popliteal.....	5	2	.....	2	5
Ulnar.....	1	.....	.....	1	.....
Common carotid.....	1	.....	.....	1	.....
Total.....	12	3	1	9	7

Number of operations, 16.  
Successful, 12, representing 60 per cent.

An examination of the experience with the different forms of valvular heart disease may not be without some special interest, but the tabulation presented below is for the last half of the statistical decade under consideration, as a change was made in the nomenclature of diseases in 1885, rendering any previous years useless for enumeration.



TABLE VI.—Consolidated table showing valvular disease.

	1885.	1886.	1887.	1888.	1889.	1890.	Total.	Death.	Ratio.
Aortic .....	68	83	88	84	104	90	517	69	13.1
Mitral .....	140	153	213	221	226	248	1,201	83	6.9
Pulmonic .....			3	1			4	0	0.0
Tricuspid .....	3	1		2	2		8	2	25.0
Total .....	211	237	304	308	332	338	1,730	154	8.8

The service experience shows that the aortic lesion is twice as fatal as the mitral.

2. THE FREQUENCY OF HEART CLOTS.

In my previous paper I presented some facts relating to the “Frequency of Pleuritic Adhesions, as shown in 1,356 Necropsies,” and following somewhat in that line I wish to take up the subject of organized heart clots, as revealed in the reports of 1,639 necropsies. In my experience at the post-mortem table I have had occasion to note the repeated occurrence of fibrinous clots in the endocardium, and from time to time I have made mention of it when forwarding my necropsy memoranda to the Bureau for the annual reports. I presume that all of the officers have observed the same pathological condition in cases where the symptoms during life gave no evidence of any cardiac insufficiency or obstruction. I need not enter into any discussion of the morbid anatomy of the organized fibrinous endocardial clot, sometimes called “chicken-fat clot” from its resemblance to the intestinal fat of fowls. Its appearance at the necropsy can not be predicated from any settled opinions as to its cause. It is found in acute and chronic diseases, but more often in diseases characterized by the slow wasting type, as in tuberculosis, septicæmia, malarial cachexia, etc., where a sluggish circulation of blood seems to favor the formation of fibrinous bodies in the heart cavity. The extent and size of some of these clots often makes one wonder how the heart has been able to supply the needs of the system, so much has the new growth encroached upon the available space in the ventricles and auricles. And not only in these spaces, but ramifications extend through the pulmonary artery, vena cava, and aorta, nearly filling the lumen of each for several inches. In the last necropsy I have made my previous experience with large clots having arterial ramifications has been outdone by a remarkable organized clot on the heart of a man who had died from septicæmia and exhaustion resulting from empyema. The two cavities on both right and left sides were entirely filled with this hard white firm clot, weighing 80 grams and branches extended into the pulmonary artery several inches; into the vena cava for a considerable distance; into the aorta 41 cm.; into the carotids 35 cm., running up into the brain; into the innominate and subclavian, and extending on each side to the axillary and brachial arteries, 58 cm., down to the elbow of either arm. It was removed whole from the heart and by careful manipulation the branches, making casts of the arteries they occupied, were successfully withdrawn and their direction verified. In the following table I have tabulated by years the necropsies which have reported the condition of the heart, and shown the number of cases where organized clots were present.

TABLE VII.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	Total.
Complete necropsis .....	97	90	95	96	71	171	241	257	244	277	1,639
Organized clots .....	17	14	27	18	12	46	66	57	61	62	380

Percentage, 23.1.

I had also noted that in cases of pneumonia which terminated fatally the organized heart clot was a common accompaniment of the necropsy, and I constructed the following table to show the relations of the two pathological conditions. This I verified by the following collation of cases of pneumonia upon which necropsies had been made.

TABLE VIII.—*Relation of pneumonia to heart clots.*

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	Total.
Pneumonia.....	5	9	7	8	8	21	26	26	28	36	174
Heart clots.....	-----	1	5	3	1	7	10	10	12	16	65

Percentage, 37.4.

It will be seen from the above two tables that in 23 cases out of 100 of all classes of fatal cases organized heart clots will be found at the necropsy. In pneumonia the ratio rises higher, up to 37.4, or more than one-third. For the years 1888-'90, inclusive, the experience showed 40.2 cases of clot in every 100 of pneumonia. Undoubtedly this adventitious tissue growth plays an important part in the mortality of pneumonia. Many cases of that disease, with only moderate pulmonic infiltration, terminate fatally from "heart failure" (so called), and the necropsy reveals the organized hard, firm, fibrinous clot, entangled in the *columnæ carneæ* and *chordæ tendinæ*, seemingly enough to practically impede the normal cardiac movements in action. I have no theories to offer in relation to the causation of these clots, as they occur in all diseases, but especially in pneumonia. I am content just now to present the bare facts and leave speculation to others. The attention of the physician in pneumonia should therefore be directed not only to the heart but to the condition of the blood. Whatever medication or procedure that will assist in the defibrinization of the blood to a point of safety would be a rational accompaniment of any treatment of that disease. In the years 1845, 1846, and 1847 the mortality rate from pneumonia in the Pennsylvania Hospital was 6.25 per cent. This was during the period of venesection, when every case of this disease was bled. In 1884, 1885, and 1886 the mortality from the same disease in the same hospital was 31 per cent. It is well understood that blood letting is not in vogue now, and a recent writer in commenting upon this changed condition as applied to this disease leaves his readers to draw their own inferences.



## ENTERIC FEVER—PERSONAL EXPERIENCE FOR TEN YEARS, 1882-1891—AVERAGE MORTALITY RATE, 71.

By Passed Assistant Surgeon CHARLES E. BANKS, *U. S. Marine Hospital Service.*

Believing that the results of ten years' hospital experience in treating a given disease upon a definite plan continuously applied among a homogeneous class of patients is worthy of record, I present the following consolidated report of 42 cases of enteric fever which have been under my exclusive personal supervision during the past decade. The statistics are compiled from my own clinical notes, supplemented by the records of the hospitals where I have been stationed. During this period there have been treated by the service 2,511 cases of enteric fever, as appears by the tabulated statements in the annual reports, and 321 of these cases have died, a mortality represented by 13.7 per cent. This experience may be compared with the results obtained in 1,194 cases reported by various observers in Europe and America, where the average death rate was found to be 16.6 per cent. (Pepper, *System of Medicine*, I, 317.)\* Of my 42 cases 3 have died, a mortality of 7.1 per cent, which is better than the best results secured in the German hospitals under their well-known hydropathic treatment.† The average duration of detention in hospitals of my cases was thirty-eight days and a fraction. I have never discharged a convalescent in this disease to "make time," and when they leave the hospital they are ready for duty. I use my authority in restraining rather than promoting an early discharge.

This favorable result which I have obtained can not be attributed to a uniform class of cases, for they have been treated in our hospitals from the Atlantic to the Pacific; nor to the influence of a mild epidemic, for they cover a period of ten years; nor to seasons, for the like reason; nor to nationality, for the cases would answer to nearly every flag that floats. They are the average form which falls to the lot of every medical officer. Believing that the results are consequent upon a definite plan of treatment which I have persisted in throughout, I feel like crediting my success to this plan. I now proceed to detail it:

First, I would place in importance the value of attentive and intelligent nursing. This is trite but especially true in this disease. But it is also difficult to secure this assistance under our limitations of compensation for skilled nurses, as it is well known that the trained graduates of the schools for nurses can command a weekly stipend nearly equal to the monthly allowance which we can offer. I have been fortunate in my last 18 cases to have the intelligent assistance of medical students who accepted the position of nurse at this station, and the resulting mortality, 5.5 per cent, is attributable largely to that circumstance. I endeavor to interest my nurse in

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\* See, also, my article on the experiences of the service with this disease in the *Annual Report for 1888*, p. 227, *et seq.*

† Lubermeister states that the death rate in the Basle Hospital fell from 27.3 per cent to 8.2 per cent after the adoption of the cold-bath treatment.

the character of this disease, explaining to him its special features and dangers in case he has no professional knowledge of it. The kind of nursing encouraged need not be minutely detailed, but it may be said, without being unnecessarily rudimentary, that the bodily comfort of the patient is of prime importance. The washed face and the cleansed mouth, the smoothed bed, the thorough cleansing after stool, the protection from piles, the quiet demeanor, all prevent the mortality from climbing up beyond the decimals. With this assistance I take care of my cases as follows: Upon admission, or after a suitable rest from a journey, for these cases seldom come to us before the seventh day, and usually from a distance, the patient is given a warm bath and put to bed, where he remains until further orders. My treatment medically is absolutely symptomatic, many of the cases having gone from onset to convalescence without a dose of medicine. Recognizing the characteristic febrile limitations of the disease, I make no attempt to abort or "cure" it by antipyritics. In other words, I do not proceed to punish the stomach and nervous system every few hours with irritating doses of quinine, antifebrin, and their congeners, for the sake of pulling down the temperature a few degrees temporarily, only to find it just as high the next day. Neither do I give a few grains of anything three times a day just for the sake of doing something. Meddlesome medication of this kind can not be logically justified. The stomach and nervous system are needed in their best possible condition to sustain the patient in the trying ordeal of an irrepressible fever which will not "down" until the force of the poison has been spent.

All temperatures recorded are axillary, and to allay the sensible effects of the fever I direct tepid-water sponging of the trunk twice daily whenever the fever runs above  $38^{\circ}$  C., making that the guide for the nurse to follow, so that he has an infallible standing order in this respect. This sponging, to which alcohol is sometimes added, has its greatest benefit for the patient in the temporary bodily comfort which it produces rather than in any antipyretic sense, for the reduction of temperature is but transient. The condition of the heart is the most important index for my action, and upon the character of the pulse I base my exhibition of stimulants internally. Nothing but a general rule can be laid down, and that is to begin the use of alcoholic stimulants as soon as the pulse becomes flabby, forceless, and necrotic, or maintains its frequency above 100 for any length of time. I give 10 cubic centimeters of whisky every two or three hours, increasing it, gradually or rapidly as required, to 20 cubic centimeters every hour or two, until the conditions warrant its diminution or withdrawal. An excessively high and wiry pulse (120 beats) may require a little digitalis in addition, but I let a full, bounding, though somewhat rapid pulse have its own gait for a few days, within reasonable limits. I have never yet seen the time when I thought the use of *veratrum viride* was justifiable.

The intestinal tract suffers the brunt of the attack, and the natural method of elimination of the poison is through the bowels. With this fact in view I note with satisfaction in any case that the above discharges are of frequent daily occurrence, nor do I attempt to modify their character or check their number unless they rise above six in the twenty-four hours. This number is necessarily arbitrary, and for which I can give no reason other than to save the patient the discomfort of too frequent stools. The use of a grain of powdered opium once, or an emulsion of turpentine is then made, but I confess it to be illogical to restrain the natural function engaged in eliminating a poison. The rather infrequent and irregular cases where constipation is a feature may likewise be safely let alone for a few days, and then nothing but a rectal injection should be given to coax along a natural peristalsis. The unfortunate condition in which many of my patients reached me was due to the well-intended but ignorant catharsis provoked by the masters of the vessels, who always give a dredging dose of "salts" to "Jack" whenever he is hauled up in the sick bay, and in this particular disease nothing could be more harmful.

The use of cows' milk exclusively, as much as the patient can assimilate, is the only diet allowed during the maintenance of the characteristic febrile curve. No general limit can be made in this matter. Some need more than others and should have



it, while the light feeders may receive whatever their capacity indicates. This statement is to be modified in cases where mental disturbance requires the administration of food by the nurse. This milk diet is maintained until the febricular movement has ceased for at least four days. Then I prefer to have the patient tell me he is hungry, or would like more, than to suggest it to him. His request comes from a surer index than my judgment, and I oftener than not wait for it. When it does come I feel that the case is entering upon a second period of danger, when "good digestion" must "wait on appetite." The demand should always exceed the supply as the dietary is increased from "milk" to "ordinary" through the gradations of milk toast, poached eggs, soup, chicken, etc., which need not be especially detailed.

As this is not intended as a treatise on enteric fever, I do not purpose entering upon a consideration of exaggerated symptoms which may arise. Hemorrhages and perforation are the only accidents which really need engage our active interference. The former I have successfully controlled with ergotin hypodermatically, and the latter is beyond our skill at present.\* Sleeplessness may require a little chloral or sulphonal occasionally at night, but such symptoms as epistaxis, tympany, cough, vomiting, deafness, *et id omne genus*, for which this, that, and the other are recommended and used by anxious practitioners, need not be made the occasion of polypharmaca' medication to worry the patient's stomach.

The results obtained justify my own abstention in this respect, for if I can and do obtain a better ratio of recoveries than the statistics above quoted will show, without annoying the patients by hourly dosing and daily immersions in cold water, I am clearly saving good medicine, the nurse's energies, and the patient's rest. In these cases the physician assumes the rôle of watch dog, ready for action in emergencies, but not necessarily barking all the time to let everybody know that he is on guard.

The subjoined table gives a list of my cases, showing name, age, admission, discharge, days under treatment, port where treated, with occasional explanatory notes. Scarcely any comment is necessary except to say that of the 42 patients the youngest was 17 and the oldest 42 years; 9 were 20 or under, 28 were between 20 and 30 years, 4 were between 30 and 40 years, and 1 over 40 years. The average age was 24 years and 6 months. Of the 3 deaths 2 were due to perforation, a condition beyond our prophylaxis at present, and 1 an immature boy of 20, from exhaustion.

Table of forty-two cases of enteric fever treated by Passed Assistant Surg. Charles E. Banks, 1882-1891.

I. THIRTY-NINE RECOVERIES.

No.	Name.	Age.	Admitted.	Discharged.	Days under treatment.	Where treated.	Remarks.
1	J. C. D. ....	42	Apr. 27, 1882	May 27, 1882	31	Portland, Oregon .	
2	P. H. ....	29	May 8, 1882	June 8, 1882	32	do .....	
3	M. N. ....	25	Nov. 13, 1882	Dec. 11, 1882	29	do .....	
4	A. J. ....	21	Dec. 29, 1882	Feb. 2, 1883	36	do .....	
5	A. O. ....	21	May 26, 1883	June 21, 1883	27	do .....	
6	H. B. ....	21	June 23, 1883	July 21, 1883	29	do .....	
7	J. J. ....	22	July 1, 1883	July 28, 1883	28	do .....	
8	J. D. ....	23	Feb. 18, 1884	Mar. 27, 1884	37	Washington, D. C.	
9	S. R. ....	24	May 26, 1884	July 18, 1884	46	do .....	
10	H. O. ....	25	June 23, 1887	July 27, 1887	35	Boston, Mass .....	
11	S. A. ....	27	July 28, 1887	Oct. 13, 1887	78	do .....	
12	J. C. ....	21	Sept. 12, 1887	Oct. 17, 1887	36	do .....	
13	J. L. ....	22	Oct. 14, 1887	Nov. 14, 1887	32	do .....	
14	J. B. ....	25	Oct. 10, 1887	Dec. 22, 1887	74	do .....	
15	B. A. ....	23	Nov. 26, 1887	Jan. 2, 1888	38	do .....	
16	H. S. ....	20	Dec. 12, 1887	Dec. 26, 1887	15	do .....	
17	H. A. H. ...	17	June 11, 1888	July 31, 1888	51	Portland, Me. ....	

\* The experiments of Dr. Senn in attempting to repair the damages of ulceration by laparotomy in enteric fever are not encouraging.

*Table of forty-two cases of enteric fever treated by Passed Assistant Surg. Charles E. Banks, 1882-1891—Continued.*

## I. THIRTY-NINE RECOVERIES.

No.	Name.	Age.	Admitted.	Discharged.	Days under treatment.	Where treated.	Remarks.
18	L. B. ....	38	Aug. 6, 1888	Sept. 10, 1888	36	Portland, Me. ....	Relapse.
19	T. A. ....	19	Aug. 18, 1888	Oct. 1, 1888	45	do .....	
20	J. P. ....	25	Sept. 29, 1888	Nov. 22, 1888	55	do .....	
21	W. S. ....	19	Oct. 8, 1888	Dec. 7, 1888	61	do .....	
22	C. W. ....	22	April 8, 1889	May 31, 1889	54	do .....	
23	J. W. D. .	21	May 22, 1889	June 26, 1889	36	Vineyard Haven, Mass.	
24	E. B. C. ....	22	Aug. 8, 1889	Aug. 27, 1889	20	do .....	Malarial complication.
25	N. H. ....	26	Aug. 11, 1889	Sept. 1, 1889	22	do .....	
26	C. A. ....	25	Sept. 26, 1889	Oct. 28, 1889	33	do .....	
27	W. A. C. ....	39	Oct. 11, 1889	Oct. 24, 1889	14	do .....	
28	J. C. ....	29	Mar. 5, 1890	Apr. 1, 1890	28	do .....	
29	H. M. J. ....	34	Mar. 9, 1890	Apr. 28, 1890	51	do .....	
30	B. S. D. ....	18	Mar. 20, 1890	Apr. 26, 1890	38	do .....	Seven cases, 31 to 37 inclusive, were under treatment at one time.
31	A. R. ....	22	Aug. 19, 1890	Sept. 29, 1890	42	do .....	
32	W. A. S. ....	23	do .....	do .....	42	do .....	
33	F. M. ....	18	Aug. 21, 1890	Oct. 6, 1890	47	do .....	Parotitis as a sequel, and relapse from an injury during convalescence, myelites, etc.
34	P. S. ....	20	do .....	Nov. 17, 1890	89	do .....	Relapse due to indiscretion of diet.
35	S. C. ....	24	do .....	Nov. 5, 1890	77	do .....	
36	I. E. ....	20	Aug. 24, 1890	Oct. 5, 1890	43	do .....	
37	F. G. ....	28	Aug. 29, 1890	do .....	38	do .....	
38	J. A. ....	24	Jan. 13, 1891	Feb. 9, 1891	28	do .....	
39	W. W. ....	25	May 20, 1891	June 7, 1891	19	do .....	

Total days  $1,572 \div 39 = 40\frac{1}{3}$  days.

## II. THREE DEATHS.

1	P. O. ....	32	Oct. 3, 1887	Oct. 11, 1887	9	Boston, Mass. ....	Perforation.
2	S. A. F. ....	20	Dec. 8, 1888	Jan. 3, 1889	27	Portland, Me. ....	Exhaustion. Had hemorrhages but they were controlled.
3	M. H. ....	23	July 15, 1889	July 21, 1889	7	Vineyard Haven, Mass.	Perforation.

Total days  $43 \div 3 = 14\frac{1}{3}$  days.





## INFLUENZA OR "GRIPPE."

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By Passed Assistant Surgeon EUGENE WASDIN, *U. S. Marine Hospital Service.*

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O. L. N.; age 28 years; a native of Finland; was admitted to the marine division of St. Francis Xavier Infirmary at Charleston, S. C., on January 29; died February 10, 1891.

*History.*—Of ordinary exposure at the docks during the prevalence of the epidemic of influenza. A comrade admitted at the same time suffering from "grippe." They both presented the general symptoms of the disease; suffused eyes, coated tongue, high temperature, and wandering lumbar and joint pains. The patient, subject of this history, also presented a condition bordering on melancholia. His commander stated that he had jumped overboard, and thought him insane. This proved to have been an accident. The nervous symptoms were very marked. Some general tremor and jactitation. Careful physical examination failed to reveal any pulmonary lesion. Heart's action was poor; pulse 100; tension diminished; no headache; no epistaxis. From previous experience with the disease and from the absence of pulmonary trouble it was feared the disease would develop into what I had before termed the abdominal type of "la grippe." The abdomen was carefully examined and beyond a little bowel tension nothing was found. Bowels had been opened on shipboard, and it was whilst in attendance upon this effect that he had fallen overboard.

Temperature, 39.5° C. Bromide of potassium with chloral given to control the nervous symptoms; also calomel and powdered charcoal, with sugar, to flush and disinfect the alimentary canal. The impress of the pathogenic influence seemed to be altogether upon the central nervous system, and during the course of disease every effort was made to combat it. At the evening visit the temperature was 40° C., pulse 110 and gaseous; tension in radial almost nil. Cold baths ordered as an antipyretic, and these were features of the treatment. At this time no antipyretic could be administered internally with safety; chloral stopped; nervousness diminished; bowels freely opened.

During the next day there was no change.

On the morning of the third day (fifth of the disease) of treatment, at the early visit, the temperature, 38.6° C.; pulse 90, but very weak and gaseous. Chest normal. Abdomen now became prominent, as was feared; the walls tense and the bowel giving forth deep, hollow percussion notes. No pain, only sense of distension. Nervous symptoms were also more marked. There was, besides jactitation, subsultus, and during the preceding night acute delirium. Although calomel and naphthaline had been used to prevent, if possible, this ballooning of the bowel by hindering fermentation of its contents, constipation was the rule from this time. The tongue now became dry and sordes collected; the face became anxious and darkly suffused, altogether presenting the general appearance of enteric fever. The temperature is best shown on chart, it being irregular under the influence of the baths. At evening visit temperature, 39.1° C., pulse 100, weak and dicrotic. Dur-

ing the day hypodermatic doses of morphial sulphate, with hyosciamine, were given, and had a most soothing effect.

On the fourth, fifth, and sixth days the condition remained the same, the patient, however, taking and assimilating a greater quantity of peptonized milk, with "bovine." The abdomen at times would retract considerably, much flatus coming per anum, under the influence of spirits terebinthinæ, internally, as well as in enema, and by hot stupes to abdomen. After these retractions, however, it was interesting to watch the abdominal walls again fill out under the influence of the quickly redistended intestine. Although there was no indication of any organic change in the bowel mucosa I now gave with charcoal the bismuth salicylate in full doses; naphthaline stopped. During the seventh day patient really seemed much improved. Abdomen diminished in size. Took freely of chicken tea, bovine, and peptonized milk. During the night the fever arose, acute mania set in, the abdomen became immense, the heart interfered with, and on the morning of the eighth day he was critically ill. Temperature, 40.8° C. (highest); pulse, 115 and gaseous, with second heat. It was imperative that the intestinal flatus be dislodged; the long, elastic tube brought away but little; turpentine had lost its virtue; it was thought futile to puncture the bowel, because of the paralysis of the coats there could be no expulsion. Hypodermatics of strychnine sulphate were given in full doses (0.002 grams) and a blister 15 by 15 centimeters applied to abdomen and allowed to remain six hours; on its removal there were then applied stupes of alternately *hot* and *iced* water. After several of these there was a large evacuation of semifluid fæces and much flatus, the abdomen rapidly diminishing. During the prevalence of this "ballooning" the stomach was so compressed against the diaphragm that its recently ingested contents would be forced back into the mouth and ejected. Warm enemas of bovine 30 cubic centimeters, whisky 30 cubic centimeters, warm peptonized milk 100 cubic centimeters were substituted for oral feeding.

On the ninth day an early visit found temperature 37° C.; pulse 85, and better tension. Abdomen still tympanitic, but not so swollen. Evening temperature, 37.2° C.; pulse 95.

Tenth day: Temperature and pulse improving, but abdomen obstinately distended. On evening of this day cold affusion failing, I massaged the abdomen with the galvanic current, using the poles alternately as a *labile*, and carrying the current up to 60 milleamperes with but evanescent influence upon the muscular structure of the bowel. From this time until death the bowel received all possible attention to no avail. Temperature once reached 40° C., but remained low or normal; digitalis and strychnine given to aid the heart, but of course did little good. Pulmonary circulation became engorged; dyspnœa supervened, and death from heart failure. At no time was there albumen in urine.

*Necropsy (six hours' post-mortem).*—Body of a young adult male; height, 165 centimeters; post-mortem lividity on nates, buttocks, and face; abdomen greatly distended; linear incision; mesentery and parietal peritoneum in perfect condition; vessels not engorged; the small intestines presented a most peculiar whitish, silvery appearance and were distended to bursting with gas, the blood vessels and lymphatics being beautifully shown in their delicate tracery through the walls. The mesenteric glands were not discernible. The great bowel was also distended; entire canal from stomach removed, and the only condition found was that of perfect "cleanliness." I must say that when punctured in situ the intestine would not collapse, thus showing the complete paralysis of its muscularis.

I have never in any disease seen the duplicate of these conditions of the small intestine.

In a former report of case No. 25, of autopsies, in annual report for 1890, I found some signs of consecutive inflammation in the mucosæ, with several small, round ulcers low down in the colon. In this case there was no organic change in the bowel at all. Liver engorged, and lighter in color; spleen congested; kidneys the same;



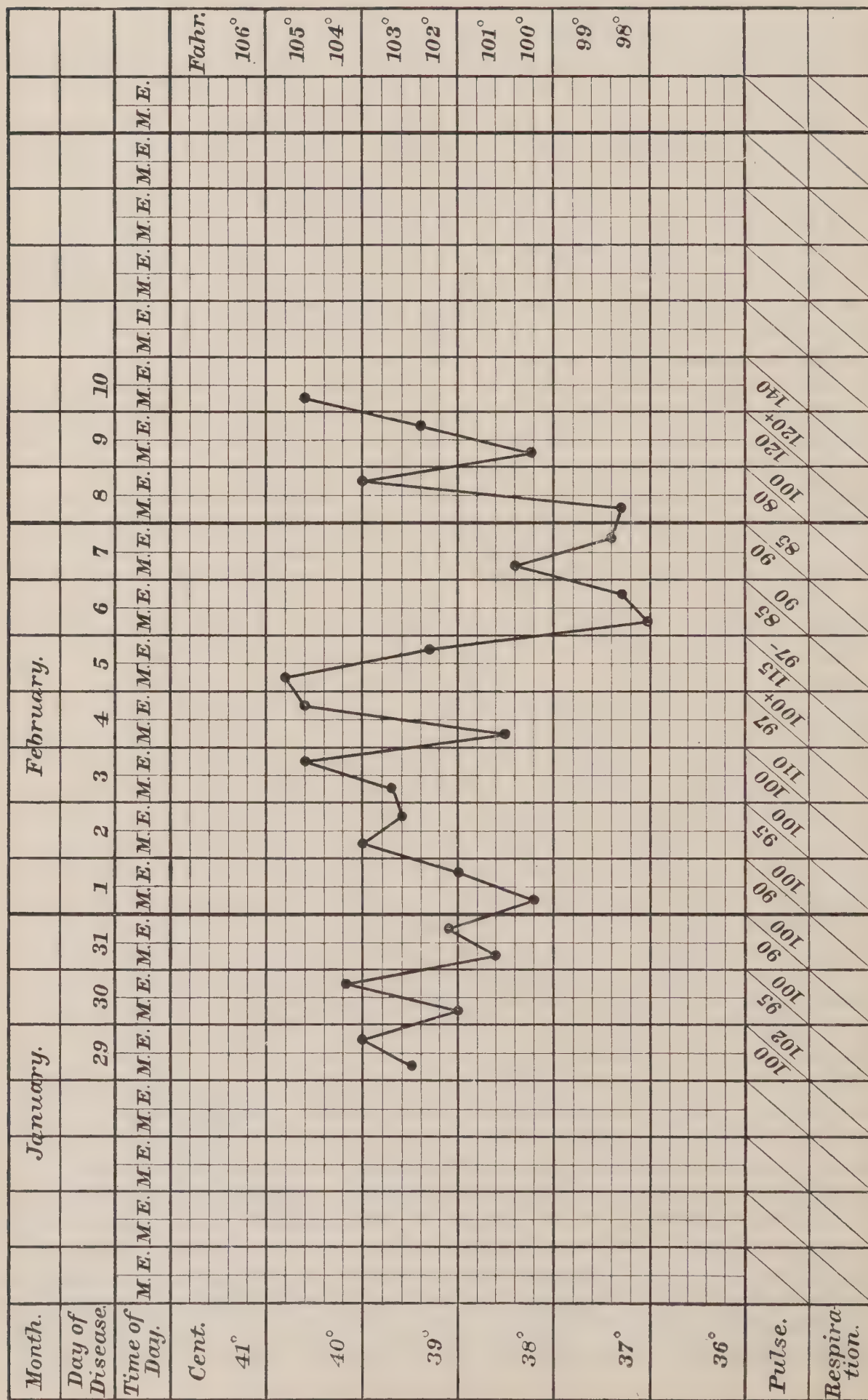
the stomach normal. Pleuræ normal; lungs in recent œdema; pericardium contained 100 cubic centimeters fluid. Heart in diastole, walls soft and deep red. Brain and cord not examined.

Since the epidemic of influenza during the winter of 1889 and spring of 1890 my attention has been attracted to a number of cases in which the disease was most pronounced and in which death almost invariably resulted. In all of these the nerve centers seemed to be involved primarily. In the greater number, besides the ordinary coryza, bronchitis, etc, of a simple attack, there quickly supervened a paretic condition of the alveolar elastic walls, which in a number of cases resulted quickly in death from apnœa. Two such cases were really drowned in their simple catarrhal secretion. In a number of other cases (most of these in civil practice) besides this paresis, or paralysis of the muscular structure of the lungs, there was the additional paralysis of the muscularis of the intestinal tract. The reported cases, No. 25 and 26 of the annual report for 1890, are of this type, and from all I can gather from professional friends the paralysis was evident both in the pulmonary and the alimentary muscle. Not only was this paresis shown by the want of function in these organs, but the heart was invariably affected. A weak, gaseous pulse with greatly diminished arterial tension was constant.

Only in the case here reported have I seen the purely abdominal type of "la grippe." At no time did a chest symptom arise for treatment. Autopsy showed recent œdema. There may have existed some paresis of the alveolar wall, but there was no primary catarrh of the tubes, such as existed in all other cases. As to the etiology of this disease Dr. Koch has recently declared that the causative microorganism has not been isolated. Still, from the close analogy of this disease to many acute infective diseases, we can form but one opinion as to its origin. The question has arisen in my mind, from this reported case, whether the primary focus of the infection is always upon the pulmonary mucosa? In all cases, save this one, the disease was typical, starting as a bronchial catarrh. In this there was no such catarrh. Does this case not seem to indicate the probability of the organism having been introduced into the alimentary canal and therefrom to have infected the system? As to the influence the microorganism exerts, from the analogy of all symptoms to those of well-known functional poisons in their action, there can be no doubt of the production of a toxic albumose at the seat of infection and its systemic absorption. This toxine undoubtedly influences the central nervous system, and during the European epidemic it was styled a "pneumogastric neurosis," some three weeks later than a date upon which, before the Charleston Clinical Society, I had made use of this term. It seems, however, that this nerve does not alone enjoy this distinction, for most of the pulmonary and intestinal paresis can be attributed to a paralysis of the sympathetic system; especially is this the case in the supply to the intestinal muscularis through Auerbach's plexus. The decreased arterial tension is, I think, due to the increased peripheral vascularity from the vaso-motor paresis, and not to heart weakness alone, for I have seen a comparatively fine heart action and almost no radial tension. Still the heart must suffer in its inherent innervation and death comes in diastole.

My conclusions are drawn from five cases in my own practice and an energetic discussion of a number of other cases in the practice of gentlemen of this city. Influenza from these cases, all fatal, is an acute infective disease, of far more gravity than it was accorded on its recent arrival upon this continent; and during the prevalence of epidemics a mortality rate equalling if not surpassing that of enteric fever, or of yellow fever, is to be expected. The treatment in these cases can be no more specific than in the functional poisoning from the albumose of diphtheria. Stimulants and strict attention to bowel disinfection, to avert any complication from the multiplication of saprophytic organisms and the elaboration of their ptomaines, should be the rule. In the distressing œdema of the lungs from the simple retention of catarrhal secretion there seems but little chance of rendering aid, and in those of

impaired vitality it ends fatally, the condition being identical to that in the capillary bronchitis of children and the senile, wherein the want of, or the loss of elasticity results in death.





## DIFFUSED POPLITEAL ANEURISM—LIGATION OF FEMORAL ARTERY AND SUBSEQUENT INCISION OF SAC—RECOVERY.

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By Passed Assistant Surgeon L. L. WILLIAMS, *U. S. Marine Hospital Service.*

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C. A. (negro); age, 25 years; native of Tennessee; was admitted to the U. S. Marine Hospital, Memphis, Tenn., August 1, 1890.

*History.*—Eight years ago patient noticed a small swelling behind the left knee-joint which gradually increased in size and pulsated. There was no history of syphilis or local injury. Knee had been stiff and painful for several years. Four months before his admission to hospital the tumor suddenly increased in size, and pain about the knee became severe. He consulted a physician, who told him that he had an abscess and proceeded to make a small puncture. A quantity of "black blood" escaped, and the puncture soon healed. Eight (!) punctures were made at various times with a similar result.

When admitted he could not extend the leg fully, and had but slight power of flexion. The inner aspect of lower third of thigh was occupied by a large, thin-walled, fluctuating tumor. A smaller and firmer swelling occupied the popliteal space. Pulsation could be made out by careful palpation. The limb measured 58 centimeters in circumference just above the knee. On the 3d of August chloroform was administered and the superficial femoral artery tied in the usual manner at the apex of Scarpa's triangle. The ligature was of catgut and antiseptic precautions were observed. The dressing was removed on the eighth day and primary union found to have occurred. Limb 48 centimeters in circumference above knee; no pulsation in tumor. Patient felt so much better that he left hospital without permission and walked to his home and back. After this escapade the tumor slightly increased in size (without pulsation), the pain returned, and there were occasional slight elevations of temperature. Four weeks after the operation the sac ulcerated at the site of one of the old punctures and a quantity of broken-down blood escaped. There being no longer any hope of absorption, an elastic band was placed tightly around the thigh, the opening in the sac freely enlarged, and about two liters of clots and disorganized blood turned out. A number of calcareous deposits, firmly adherent to the outer wall of the sac and to the periosteum of the femur, were with difficulty detached. With a hand in the sac the inner and posterior portions of the femur, covered only by periosteum, could be felt as far as the junction of the lower and middle thirds, and the integument was found to be dissected away from the inner side of the capsule of the knee-joint and the head of the tibia. The condyles of the femur were considerably enlarged.

The sac was now thoroughly flushed with Thiersch's solution and packed with sublimate gauze. A piece of rubber tubing was placed around the thigh and patient instructed to tighten it upon the appearance of a trace of hemorrhage. The cavity rapidly contracted, the gauze packing being renewed daily, and two months after incision of the sac had entirely healed, leaving a depressed cicatrix firmly adherent to the femur. Two months after deligation of the femoral artery the heel became painful and a circular slough, as large as a silver dollar, formed upon it. It extended deeply, nearly reaching the calcaneum, and slowly separated, the cavity filling by granulation.

Discharged, recovered, January 21, 1891, with perfect motion at knee-joint.

## ABSCESS OF LIVER.

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By Passed Assistant Surgeon L. L. WILLIAMS, *U. S. Marine Hospital Service.*

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J. D.; age, 28 years; American (colored); was admitted to the U. S. Marine Hospital, Memphis, Tenn., August 31, 1890.

*History.*—Ten days before his admission he had a chill, accompanied by a severe pain in the right hypochondrium; has since had occasional attacks of nausea and frequent blood-stained dejections. On day of admission he had hiccough and his facial expression indicated great distress. Temperature, 37.8° C.; pulse, 112; respiration, 36; conjunctivæ slightly yellow. Hepatic dullness extended from fourth intercostal space to a point 8 centimeters below costal border. There was much tenderness in right hypochondrium. An exploratory aspiration gave no result.

*September 1.*—Conjunctivæ very yellow; distressing hiccough. The abdominal wall to the left of the epigastric region appeared to be somewhat prominent and was dull on percussion. Introduced aspirator and withdrew a few drops of pus. Chloroform was administered and an incision 5 centimeters long made through the abdominal wall, at a point midway between the xiphoid cartilage and the umbilicus and about 3 centimeters to the left of the median line. Pus was found immediately beneath the peritoneum. A large quantity of ropy pus, about a liter, was evacuated and the cavity irrigated with hot sublimate solution. The cavity was explored with the finger and the under surface of the left lobe of the liver found to constitute its upper boundary. In other directions it was separated from the general peritoneal cavity by a thin limiting membrane. A large drain was inserted and a moist dressing applied. Soon after the operation hiccough ceased and patient reacted well. Hiccough became troublesome again next day and continued for forty-eight hours, when a profuse discharge of pus and bile occurred through the drainage tube and the hiccough ceased. It is probable that this discharge came from a second abscess bursting into the cavity of the one first opened.

The subsequent history presents little of interest. Daily irrigations were employed and the cavity gradually closed. Patient was discharged October 19, 1890, there being at that time a few drops of serous discharge daily. Ten days later he presented himself at the Marine Hospital office. The wound was soundly healed and deep palpation over the cicatrix and its vicinity failed to elicit the slightest tenderness.



## CONTRACTED FINGERS—OPEN INCISION AND SKIN-GRAFTING.

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By Passed Assistant Surgeon L. L. WILLIAMS, *U. S. Marine Hospital Service.*

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W. H. (negro); age, 26; native of Alabama; was admitted to U. S. Marine Hospital, Memphis, Tenn., March 8, 1891.

Ten years ago, while employed in a planing mill, he received a wound involving the palm of the left hand and the palmar surfaces of the ring finger and little finger. These digits were firmly flexed on the palm and the opposing surfaces of their first and second phalanges united by dense cicatrices. The awkward position of these fingers interfered greatly with the use of the hand, and an operation was undertaken in the hope of giving relief. The cicatrices welding together the first and second joints of the fingers were incised down to the flexor tendons. The palmar fascia was also freely incised transversely and the fingers forcibly straightened. They were secured in this position on a dorsal splint and all oozing carefully checked with hot water. The three gaps in the integument were then completely covered by forty-five skin grafts taken from the forearm. These in turn were covered with strips of rubber tissue and the hand enveloped in a gauze dressing. The strictest antiseptis was observed. Eight days later the dressing was removed and the grafts found to be firmly adherent. The splint was kept on a week longer. Patient was discharged April 17, 1891, with almost perfect flexion and extension of little finger. In the ring finger there was good flexion and about half the normal amount of extension. Complete extension of this finger could have been secured by a slight additional incision of the palmar fascia, but patient was satisfied with the result and declined further interference.

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TABLE OF TUMORS OF THE BRAIN.

Annual Reports of the Marine Hospital Service from 1873 to 1890, inclusive.

Compiled by Passed Assistant Surgeon W. D. BRATTON.

Total number cases treated .....	571, 528
Total number deaths.....	7, 367
Total number autopsies (1881-1890, inclusive).....	1, 913
Cases tumor of brain, total number .....	17

No.		Annual report.	Page.
1	Tumor brain .....	1879	86
2	Tumor brain, "syph." .....	1881	106
3	Gumma of brain .....	1883	203
4	Hydatid of brain .....	1883	220
5	Tumor brain, osseous .....	1884	75
6	Gumma brain .....	1884	153
7	Do .....	1884	175
8	Tumor brain, vascular .....	1884	217
9	Hematoma cystiform brain .....	1886	71
10	Fibrous tumor brain .....	1886	121
11	Round-cell sarcoma brain .....	1887	213
12	Tubercular tumor brain .....	1888	281
13	Cysts of ventricles, brain .....	1888	324
14	Cerebellar gumma .....	1889	305
15	Tumor cerebellum .....	1889	310
16	Gumma brain .....	1890	193
17	Lymphangioma brain .....	1890	242



## ABSCESS OF LIVER—LAPAROTOMY—RECOVERY.

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By GEORGE T. VAUGHAN, *Assistant Surgeon U. S. Marine Hospital Service.*

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F. P.; age, 26 years; white; native of Indiana; was admitted to the marine ward of the Evansville City Hospital February 27, 1891.

*History.*—Had been a steady drinker of whisky and beer for several years. Five weeks previous to admission and three days after a spree, he was taken suddenly with severe pain in the right hypochondriac region which prevented sleep for three days. The pain was not shooting in its character, but constant in one place. Bowels constipated, profuse cold sweats, but no chills and no vomiting. Thinks he had fever. After three days the pain was not so severe, but has continued more or less ever since, with irregular chills, fever, night sweats, and occasionally vomiting and dry cough. Condition on admission: Sallow or muddy skin and conjunctivæ; visible enlargement of the epigastrium and right hypochondrium, most marked at a point midway between the navel and the cartilage of the right ninth rib, where also the tenderness and pain were greatest; liver dullness much increased, especially in front, extending from the fifth rib to the level of the umbilicus.

The stools were light colored, the urine dark, and was thought to give a slight bile reaction with chloroform, though it gave none with Gmelin's test. For three weeks after admission to hospital these symptoms changed but little. The temperature ranged from 37° to 37.3° C. in the morning to 37.5° to 38° *per os* in the evening; but the pain grew worse, requiring large doses of morphine to produce any relief. It not being clear from the signs and symptoms whether it was a case of abscess of the liver or obstruction of the cystic or one of the bile ducts, or both, laparotomy was decided to be the most rational mode of treatment.

On the 22d of March the patient was chloroformed and under strict aseptic conditions an incision 15 centimeters long was made through the skin and fascia from the cartilage of the right ninth rib downward and parallel with the linea alba. The muscles were then divided for 10 centimeters down to the peritoneum, which was thickened but not attached to the liver. All bleeding was then arrested and the peritoneum was opened by an incision 8 centimeters long, bringing the liver into view. Two fingers were introduced and as far as they could reach in all directions the liver was felt, giving the sensation of a fluctuating tumor with thin walls. The gall bladder could not be felt, though the intestines just below the liver could be touched, so that it was concluded that no distention of the gall bladder existed. As no adhesions between the liver and abdominal walls existed, it was decided that the safest course would be to stitch the liver and adjacent peritoneum together, in order to exclude the peritoneal cavity, before opening the abscess. This was done with a small needle threaded with catgut, leaving about 5 centimeters of the liver surface exposed at the bottom of the wound, which was packed with iodoform gauze and dressed.

The next day, March 23, on removing the dressing firm adhesions were found to have formed, effectually protecting the peritoneal cavity. A large aspirating needle was inserted to the depth of  $2\frac{1}{2}$  centimeters, but no pus was reached until it had penetrated to the depth of  $7\frac{1}{2}$  centimeters, when about 60 cubic centimeters of pus and blood were evacuated. The opening was enlarged by means of a grooved director, but no more pus could be found. A finer exploring needle was then introduced in various directions into the liver substance to the depth of from 5 to 8 centimeters, hoping to detect other abscesses if they existed, but only blood was withdrawn. The wound was then packed and dressed as before. Three days later the exploring needle was again used, but no pus was found. The wound was dressed about every fourth day. The pain gradually disappeared, the temperature and pulse became normal, and the patient was discharged at his own request April 21, 1891, with a small bunch of granulations which had not skinned over, and a perceptible diminution in the size of the liver.



## ORGANIC STRICTURE OF THE URETHRA—PERINEAL FISTULA—PERINEAL SECTION—RECOVERY.

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By GEORGE T. VAUGHAN, *Assistant Surgeon U. S. Marine Hospital Service.*

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C. C.; aged, 28 years; white; native of Ohio; was admitted to the marine ward of the Evansville City Hospital October 27, 1890, suffering with organic stricture of the urethra and a perineal fistula. The fistula had existed several months, and was the result of an abscess of the perineum, which doubtless resulted from a stricture of the urethra of several years standing.

On the 28th of October the patient was chloroformed and attempts were made by myself first, and then two other surgeons, to pass a steel sound, whalebone, or Banks bougie into the bladder, but without success, the instrument being invariably arrested about the junction of the membranous and bulbous portions of the urethra. A steel sound was then introduced as far as it would go, and upon this an incision was made in the median line of the perineum, opening the urethra about 5 centimeters in front of the stricture—the Wheelhouse method. The sides of the urethra were then held apart by tenacula, so as to expose the stricture, and attempts made to pass a silver probe (as had been done previously in a similar case), but without avail. After some trouble the point of a Banks bougie was induced to pass the stricture and was pushed on into the bladder, forcibly dilating the stricture. Otis's dilating urethratome was then introduced through the wound into the bladder and the stricture was cut and dilated to the proper size. Two strictures found in the pendulous urethra were cut and dilated with Otis' instrument. A rubber catheter was passed through the perineal wound into the bladder and was left in twenty-four hours. Nothing was done to the fistula. The patient had a chill soon after the operation, the temperature going up to 39° C.

On the fourth day after the operation a No. 15 English sound was passed from the meatus, and was followed by a slight chill and elevation of temperature. The sound was passed afterwards every fourth or fifth day, gradually increasing the intervals to seven days. Two weeks after the operation the primal wound and fistula had healed, all the urine being discharged in the normal way. The patient was discharged in good condition December 2, 1890, with instructions to pass a No. 13 English sound (which he had been taught to use) about once a month for two or three years.

## OPERATION FOR RADICAL CURE OF INGUINAL HERNIA—RECOVERY—LATER DEATH FROM ANASARCA.

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By GEORGE T. VAUGHAN, *Assistant Surgeon, U. S. Marine Hospital Service.*

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H. W.; age, 38 years; native of Maryland; was admitted to the marine ward of the Evansville City Hospital February 17, 1891, for the purpose of having an operation performed on him for the cure of a large inguinal (scrotal) hernia of the left side, from which he had suffered for eighteen years. The hernia was becoming larger, and of the various trusses tried none would retain the intestines in their proper place.

The patient had been anxious for an operation, but owing to a double heart murmur (aortic direct and mitral regurgitant), with symptoms of hypertrophy and failure of compensation, considerable hesitation was felt as to the propriety of taking the risk of an anæsthetic and the shock of the operation. The presence of the hernia in the scrotum produced so much pain and annoyance that at last it was decided to undertake the operation. The patient was given chloroform to unconsciousness, and this was maintained with ether without a single bad symptom, and under strict aseptic precautions Marcy's operation was done. The intestines having been reduced, the sac was opened and freed from adhesions to within the internal ring, where it was sewed across and amputated. The usual obliquity of the canal was then restored as nearly as possible by means of Marcy's needle and the shoemaker's stitch. The skin and fascia were united with interrupted sutures, the wound dusted with iodoform, over which were placed several layers of aseptic gauze, with an external dressing of absorbent cotton retained in place by adhesive plaster. Catgut sutures were used throughout the operation, and no provision was made for drainage. The highest temperature was 38° C., oral, on the day after the operation, and after the third day there was no fever. The patient was kept in bed, and the dressings were not disturbed until March 3, fourteen days after the operation, when the wound was found healed throughout. There had been no discharge of any kind. The patient was allowed to leave his bed and walk about without a truss, and was discharged March 25 recovered from his hernia and apparently improved as to his heart disease.

About six weeks after returning to work general dropsy set in and the patient was admitted to hospital March 8, but died next day from œdema of the lungs.

At the necropsy lesions of the aortic and mitral valves were found, with hypertrophy and dilatation of the heart. On dissecting the site of the operation for hernia the following conditions were observed: A visible scar in the integument and superficial fascia, but none perceptible where the sac had been amputated, the peritoneum being smooth, with no bulging toward the inguinal canal. The rings and canal were quite small, admitting with difficulty the tip of the little finger, being much smaller than the corresponding parts on the other side.



## A SUPPOSED CASE OF MORVAN'S DISEASE.

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C. P. WERTENBAKER, *Assistant Surgeon, Marine Hospital Service.*

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The interest taken by the profession generally in "Morvan's" disease, its obscure pathology and the meager data in regard to its clinical history leads to this rather detailed report of a case that is still under observation.

J. W.; age, 54; nativity, England; was admitted to marine ward, St. Mary's Infirmary, Galveston, Tex., December 11, 1890.

*History.*—Family history good. Father died of pneumonia at age of 75; mother still living. Was one of seven children, of whom three are living, two sisters and himself. the others died young. At 9 years of age he shipped as cabin boy and came to America; sailed in coasting vessel for the next ten years, and then made a voyage to China. At Hongkong he was intimate with Chinese women for several months. About six weeks after leaving Hongkong, developed inflammation of lymph glands of groin; did not notice any ulcers on penis. Was treated for the above in U. S. Marine Hospital, San Francisco, was six months in hospital, and discharged improved. Remained on the Pacific coast for the next three years, and then made a voyage to Peru; while there he states that sores broke out all over his body; they would scab over and, healing, left brown stains in the skin that remained for some time. Was under treatment during his return to the United States, and within a year he had entirely recovered. The next year, 1861, had ulcers of penis, these were contracted in England; They were cured in a short time. He remained in England, making short voyages, until 1865. In this year he returned to Hongkong, where he remained several months; was again intimate with the Chinese women, but contracted no disease; returned to England, and lived in Liverpool. In 1870 again contracted ulcers of penis; these were soon recovered from. Married in 1871; had six children, of whom all were healthy according to his statement. Two are living now, aged 13 and 15 respectively, and are hearty and strong. The other children died of fever in infancy. He had an attack of malarial fever, intermittent type, between 1871 and 1889; no other illness until February, 1889, when he had an attack of pneumonia, for which he was treated in the Sealy Hospital. While still suffering from this attack of pneumonia he first noticed a bleb on the palmar surface of right hand on hypo-thenar eminence, which soon became an ulcer; this soon healed, but left the little finger bent and claw-like.

He left the hospital and shipped again, sailing in and about Galveston Bay until December 11, 1890, he was admitted to the marine ward, St. Mary's Infirmary, and for the first time came under my notice. On admission he was suffering from a numbness of both hands and forearms, extending nearly to the elbow on both limbs. The numbness was less marked on the outer side of each arm. Both legs had the same numbness, extending nearly to the knees, being less marked on the outer side. Left hand had begun to have the claw-like appearance. The middle finger was the first to exhibit this appearance. Then the thumb followed about a month later, and still later the ring and little finger began to be affected. The index finger at this

writing (July 1, 1891) is freely movable, but is commencing to atrophy and is getting stiff, the atrophy commencing at the terminal end and extending toward the hand, giving the finger a pointed appearance. The stiffness always commenced in the terminal phalangeal joint, and gradually extending involved the other joints of the finger. While the left hand was first affected, and these changes were taking place, the right hand began to show signs of stiffness, but it was slight. The patient was put on a treatment of bichloride of mercury and iodide of potash and instructed to bathe the arms in hot water once daily. Under this treatment he improved, the numbness was less troublesome, the fingers seemed more freely movable.

On March 5, 1890, was discharged from hospital as "improved." At this time he was fleshier than he had been for years; general health was good; slept well. He went to work on a coasting schooner, and about March 25 the middle finger of left hand became inflamed and ulcerated. He was readmitted to hospital April 1, 1891. The finger was then much enlarged and had an angry-looking ulcer on the inner and palmar aspect. About the same time an ulcer formed on the foot, just beneath the tarso-metatarsal joint of the little toe. This ulcer healed with great difficulty. From the inflamed appearance of the finger one would have thought that it would be exquisitely tender, but, on the contrary, the part could be examined and handled without inconvenience to the patient. A probe passed into the finger and moved freely around produced no discomfort. Several sinuses had formed along the sheath of the tendons and extended down to and along the bone. These were opened with the knife without an anesthetic and with no inconvenience to the patient. The terminal phalanx of this finger sloughed off. After this the wound promptly healed, leaving the finger stunted and shortened, as though it had been telescoped. The nail grew out much distorted, and looked not unlike a claw. Early in June the little finger of the left hand began to grow red and swell. It was promptly incised and discharged a good deal of pus, and began slowly to heal, but for a time it seemed as if it was going to follow the same course as the middle finger. The numbness in the arms and legs seemed to be increasing, the left side being the worst. The health of the patient otherwise is good, appetite fair, he sleeps well, he is cheerful, and thinks he will soon be well enough to go to work. This he will probably never do. The case is being carefully watched, full notes being made, and further report of the case will be sent next year.



## COMPOUND (OPEN) FRACTURE OF BOTH BONES OF LEG—RESECTION—RECOVERY.

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C. P. WERTENBAKER, *Assistant Surgeon Marine Hospital Service.*

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E. A. age, 37; nativity, Norway; British seaman; was admitted to marine ward of St. Mary's Infirmary, Galveston, Tex., October 5, 1889, suffering from a compound fracture of both bones of the right leg. The leg had been fractured during a storm in the Bay of Biscay, twenty-five days previous to his admission, and had been put in splints, which were tightly bandaged by the master of the vessel.

When the splints were removed the wound was found to be in a most horrible condition. The discharges had soaked the cotton and bandages which had been placed around the leg before the splints were applied; decomposition had taken place. The odor was very offensive. The leg was denuded of skin from knee to ankle, and covered with a layer of offensive pus. The bones were not in approximation; the edges of the wound dark and foul looking. The wound was thoroughly washed out with bichloride of mercury solution, fracture reduced, and leg placed in fracture box. Within eight or ten days there were evidences of necrosed bone in the wound. The patient was anesthetized, and a resection of both tibia and fibula made, taking out a portion of necrosed bone from each. A counter opening on the calf of this leg was made, a drainage tube passed through the wound, and the leg was again placed in the fracture box. However, the excoriated condition of the leg, which was kept constantly wet by the discharges from the wound, together with the fact that it was impossible to keep the bones in apposition during the daily dressing of the wound, made the use of some new form of apparatus imperative. After vainly trying various splints without success, the following cradle was devised, and to it the patient owes his recovery: A rod extending from the head to the foot piece of the mosquito-net frame of the bed was held in place by being lashed to the frame. From this frame were suspended two loops of bandage, about 3 feet apart. These supported a bit of board about 4 inches wide by 4 feet long, thus making a swing. From this board separate loops of bandage, from five to seven in number, passed beneath the leg, and the ends were tied over the board above, raising the leg some 3 inches from the bed, and allowing it to swing easily and comfortably in the cradle thus formed. The leg could now be dressed without disturbing the fragments, while the drainage was perfect. The soiled loops of bandage could be replaced by clean ones, one at a time, without so much as a jar to the leg.

From the day the leg was placed in this cradle it commenced to improve. The healing progressed nicely for two weeks, at the end of which time fluctuation was discovered in the fibular region, above the wound. An incision was made down to the bone, turning out a hæmatoma that had formed. After this the healing process continued without interruption, with the exception of several small abscesses that formed on the leg, but healed promptly on being opened and washed out. The bones had united by November 20, but the formation of these abscesses delayed the use of the leg. On January 1, 1890, the patient first got out on crutches. Three

weeks later he put on a high-heeled shoe and commenced to walk with a cane. He was discharged "recovered," March 11, 1890, with a very useful limb; the shortening only being three-quarters of an inch. This was one of the worst cases of compound fracture that had ever been in the hospital. Having been neglected so long before admission, it was extremely doubtful if the leg could be saved; several surgeons who saw the case predicted that the leg would have to be amputated.

Attention is called to the cradle used in this case. Its perfect success here would indicate its value in similar cases. Every surgeon knows how essential yet how difficult it is to secure perfect rest for the fragments in the cases of compound fracture, and at the same time keep the dressings clean and sweet. This cradle seems to meet all the requirements. The merits claimed for it are as follows:

1. It secures absolute rest of the fragments without confining the patient to one position, as with a fracture box. With this cradle he can move about the bed with freedom.

2. Its simplicity. It can be arranged in a few moments with almost any materials, a rod, a bit of board, and a few strips of bandage being all that is required.

3. Its perfect cleanliness. It allows perfect drainage, and permits the washing out of the wound, the application of dressing, etc., without disturbing the fragments.

4. The supporting bandages being in separate pieces, may be removed, one at a time, when soiled, and replaced by clean ones. In this way the whole apparatus may be replaced, piece at a time, without so much as jarring the fragments.

5. It is the most comfortable form of cradle that can be used, adapting itself to the outline of the limb, giving equal support at all points.



## NEURITIS FOLLOWING A GUNSHOT WOUND—EXTRACTION OF BULLET—RECOVERY.

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By Assistant Surgeon A. C. SMITH.

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C. B. (colored); age, 29 years; native of Alabama; admitted to U. S. Marine Hospital, New Orleans, La., September 3, 1890.

He received a wound from a pistol shot in the left thigh near the groin, the 12th day of February, 1890. He stated that his assailant was standing only a short distance away and fired with the pistol pointed partly downward, and he fancied he both felt and heard the impact of the bullet against the bone. He was admitted to the U. S. Marine Hospital at New Orleans five days later and treated for the wound, which healed without causing much constitutional disturbance. The sinus of the wound was incised and scraped at that time, but the location of the bullet was not discovered. During his stay in the hospital he was also treated for secondary syphilis. He was discharged from the hospital April 30, and again admitted July 17 and discharged August 13th.

At the time of his admission, September 3, he complained of burning pain in certain regions of the thigh and leg and of weakness of the limb, which he stated had been constantly present since he received the wound and had resisted all medical treatment. He located the pain in the anterior surface of the thigh, the fore part of the knee, and the inner side of the leg down to the side of the foot. The patient himself was sure he could feel the bullet deep against the bone in the middle of the thigh, and wanted it cut out at that point. Tactile sensibility in the areas indicated was impaired. He walked with a limp and complained that his knee was liable to go from under him. Measurements of both thighs showed the left to be slightly smaller than the right, one-half to 1 centimeter—not more than might exist naturally. The scar of the wound extended for about 12 centimeters across the front of the thigh close to the groin. The left knee showed synovitis with effusion, but this, he stated, had existed prior to his receiving the wound.

Various methods of stimulation, including electricity, were tried, without affecting the condition of the limb. The fact that the neuralgia and muscular weakness were so exactly in the distribution of the anterior crural nerve in the limb indicated that the affection of the nerve arose at a point close to its exit from the abdominal cavity. The nerve might have been contused by the bullet, or it might be involved in the scar of the wound, or irritated by the lodgment of the bullet against it. An operation was performed September 27, the intention being to cut down upon the nerve close to its exit into the thigh and stretch it in case the immediate cause of the neuritis were not found. The bullet was found lying directly over the nerve, surrounded by a capsule which involved the sheath of the femoral artery, and the fascia surrounding the nerve, and about 3 centimeters distant from Poupart's ligament. The patient recovered from the operation rapidly and experienced immediate improvement. Subsequent treatment consisted in local stimulation of the limb. He was discharged from the hospital, recovered, on November 3, 1890.

## POPLITEAL ANEURISM TREATED BY DIGITAL COMPRESSION.

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Reported by LELAND COFER, *Assistant Surgeon Marine Hospital Service.*  
Service of Surg. FAIRFAX IRWIN, *Marine Hospital Service.*

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### POPLITEAL ANEURISM TREATED BY DIGITAL COMPRESSION—PULSATION ARRESTED IN FOUR HOURS.

W. M., seaman; age, 30 years; nativity, Nova Scotia; admitted to hospital October 6, 1890.

*History.*—Had pain and disability of left leg about four months; pain is almost constant back of knee-joint and extends down to the toes. No satisfactory information furnished as to causation. On examination a swelling was found about as large as an orange, occupying the popliteal space. Inspection showed characteristic expansile pulsation; palpation revealed well-marked thrill; auscultation either mediate or immediate disclosed a very loud and distinct *bruit*. There was marked œdema of leg and foot. The patient had a superb physique and digital compression was decided to be the best method to pursue in the case.

*Treatment.*—Twenty hospital attendants were selected and the operation began on October 8 at 11 a. m. Surgeon Irwin explained to these men the nature of the disease, the method adopted for treatment, and the reasons therefor. The men were divided into watches of ten each, with a medical officer to direct them. These watches were to relieve each other every four hours, and every man was expected to hold the artery ten minutes. They were instructed to cover the thumbs well with corn starch and then place the left thumb over the femoral artery as it lies in Scarpa's triangle and then cover the left with the right thumb and throw the necessary weight from the shoulder, keeping the arms straight. It was the duty of the medical officer present to see that sufficient pressure was made to shut off pulsation in the sac and to note carefully the condition of the patient meanwhile. Nothing unusual occurred during the first four hours; a small amount of morphia only was used to quiet the patient.

*Result.*—About five minutes after the second watch came on duty pulsation in the sac ceased entirely, although compression was suspended. Pressure was immediately resumed and continued until 1 o'clock a. m., when it was thought safe to discontinue it. The knee was then placed in semiflexion on a pillow and kept in that position four or five days. The patient was kept in bed about three weeks and then allowed to walk about the ward. Improvement was gradual but steady, and when he was discharged, December 26, the tumor had been reduced to about the size of a walnut, had a firm fibrous feel, and showed neither pulsation, thrill, or *bruit*. Œdema and pain had disappeared and the patient resumed his work in excellent condition. The patient came to the out-patient department about a month after his discharge to be treated for another disease; he said then that his leg gave him no trouble, and in fact he never thought about it.

The writer has been able to find but one other case on record when four hours' time was sufficient to shut off pulsation in the sac, digital compression being used.



## AN ANOMALY OF THE KIDNEYS.

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By Assistant Surgeon J. C. PERRY, *U. S. Marine Hospital Service.*

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The following case recently came under my observation while performing an autopsy at the U. S. Marine Hospital, Mobile, Ala. The right and left kidneys were in their normal position on each side of the vertebral column. The two organs were connected at their lower end by an isthmus of renal tissue, of crescentic outline, which gave the whole the characteristic horseshoe shape.

The middle portion, or third kidney as I think it would be better to name it, crossed in front of the fourth lumbar vertebra. It was 9 cm. in length, and 5 cm. in breadth. The anterior surface was perfectly smooth; the posterior portion showed a marked constriction, a sulcus between each extremity and the other kidneys. The structure was that of normal renal tissue. The medullary portion was arranged in six pyramids of Malpighi. A true pelvis existed, although it was smaller than that ordinarily found in normal kidneys. It was provided with two ureters, one of which passed from each side of the pelvis. The left, 5 cm. in length, was of the size of a quill; passing obliquely upward and outward, it united with the ureter from the left kidney. That from the right side was shorter, 4 cm. in length, and joined the ureter from the right kidney.

The left kidney was 14 cm. in length and  $6\frac{1}{2}$  cm. in breadth. Its anterior surface was smooth, the posterior surface rough and irregular. The pelvis was larger than normal, and was situated in the posterior part of the gland instead of the internal border. The ureter was of normal size, but adherent to the capsule of the kidney until it reached the lower border.

The right kidney was 12 cm. in length and  $5\frac{1}{2}$  cm. in breadth. The anterior surface was smooth, the posterior rough and irregular. The pelvis was larger than normal, and the ureter was similar to that of the left.

The entire "horseshoe" mass weighed 470 grams.

*Remarks.*—The most marked anomaly in the shape of the kidneys, both being present, is the "horseshoe" kidney; this being a more or less complete union of the organs of each side. Fusion may be at the upper or the middle portion, but is usually at the lower end. The most common anomaly is where the kidney has a double pelvis, with two ureters, which, however, unite before reaching the bladder. The next in rarity is the "horseshoe" kidney. Those cases in which the connecting portion is at the middle are very rare. Sometimes a complete fusion of the kidneys takes place, and they are found united in the median line. The absence of one organ is occasionally observed. Supernumerary kidneys have been reported, and I think, judging from the formation of the pelvis and ureters, this could be called one.

These anomalies are of some clinical interest. The third lobe might be mistaken for an abdominal tumor, or by compression of the great vessels might interfere with the circulation. Again, in horseshoe kidney, and when one is absent, it can be readily conceived how embarrassing a nephrectomy would become. Usually, however, they cause no symptoms and their presence is not recognized until after death.

The subject from whom this was removed had been a patient in the hospital for several months, suffering with tubercle of the lungs, which caused his death, and at no time were any urinary symptoms noticed.





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REPORTS OF FATAL CASES, WITH NECROPSIES.

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## REPORTS OF FATAL CASES, WITH NECROPSIES.

### DIPHTHERIA.

J. M.; age, 22; nativity, New York; was admitted to the U. S. Marine Hospital, Chelsea, Mass., November 2, 1890; died November 24, 1890; diagnosis diphtheria.

*History.*—His soft palate, uvula, and tonsils were covered with a membrane, and there was great infiltration and swelling of the lymph glands of the neck. His urine contained 20 per cent of albumen by volume. Swallowing very difficult. Nasal cavities became involved, and during the last week there was paralysis of soft palate. Four days before his death lobular pneumonia was discovered.

*Necropsy (eleven hours after death).*—Body well nourished; some swelling of glands and tissues about the neck. Lungs showed the presence of lobular pneumonia. In pericardium there were signs of an old pericarditis. At base of the heart was a small, circumscribed spot of myocarditis. Valves normal. Larynx and trachea were eroded of their mucous membrane in places; some few shreds of membrane clinging to them. Acute inflammation of mucous membrane of trachea, extending into left bronchus. The kidneys presented appearances of acute nephritis.

### ENTERIC FEVER.

#### CASE 1.

O. J.; age, 40; a native of Norway; was admitted to the marine division of the St. Francis Xavier Infirmary at Charleston, S. C., May 21, and died June 5, 1891.

*History.*—This patient was first admitted to hospital on May 8 under the diagnosis of malarial fever of a distinctly intermittent type; after several days the fever became continuous with evening exacerbations. Diarrhœa came on, and the bacillus typhi abdominalis was isolated. The fever ran its course with no undue symptom until the commencement of the fourth week, as near as could be ascertained, when a very copious hæmorrhage occurred from the bowel. This depleted him and was the immediate cause of death.

*Necropsy (held six hours post mortem).*—Body of a white adult male; emaciated and blanched; no hypostasis; but little rigor mortis; height, 180 centimeters; abdomen slightly swollen. Linear incision revealed the mesentery and intestines anæmic and discolored; glands enlarged; Peyer's patches showing through the walls of ileum. Section of two meters from just below the valve gave a number of such glands enlarged. Some of them had healed over, others were ulcerated, and one gave evidence of having been the seat of the recent hemorrhage. Liver enlarged; spleen the same; kidneys congested; heart muscle soft and appeared fatty. Pleuræ normal; lungs œdematous in dependent portions. Brain and cord not examined.

#### CASE 2.

W. B. G.; native of Maine; age, 40; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., October 25, 1890; died November 5, 1890.

*History.*—Patient stated that he had been sick ten days. He said that he had a chill followed by fever. Every day he would have a slight chill followed by fever, but

nosweating. He also had a feeling of great weakness and malaise, had profuse watery diarrhœa up to the day of admission, when it ceased. On admission the patient complained of headache, and general malaise, tenderness and gurgling in right ilia fossa. The rose spots were present on the abdomen and thighs. He also had fever. The patient was put on milk and brandy. The temperature did not go above 39°C. He gradually sank, finally dying November 5, 1890, 9:30 o'clock p. m.

*Necropsy.*—Post-mortem examination was made thirteen and a half hours after death. *Rigor mortis* marked; post-mortem lividity marked.

*Thorax opened.*—The anterior portion of the left lung was adherent to pleura by old pleuritic adhesions, otherwise the pleuræ were normal. Left lung examined; anterior adhesions were found; lung hyperæmic posteriorly, otherwise normal. Right lung examined: Was found hyperæmic posteriorly, otherwise normal. Heart examined: Was small but normal.

*Abdomen opened.*—Spleen examined: Was small and dark blue in color, containing punctate hæmorrhages. Liver examined: Found slightly fatty and hyperæmic, otherwise normal. Left kidney examined: Was pale and small, capsule nonadherent, cortex thinned and having the appearance of cloudy swelling. Right kidney examined and the same condition was found; the kidney small and pale, capsule non-adherent, cortex thinned and having the appearance of cloudy swelling. Intestines examined: The mesenteric glands were reddened and containing hæmorrhagic foci. For 60 cm. above the cæcum the solitary glands and Peyer's patches were ulcerated; the ulcers were deep, extending to the muscular tissue; the intestines were also hyperæmic.

### CASE 3.

#### *Abscess of liver.*

J. W. (colored); age, 34; native of Kentucky; admitted to U. S. Marine Hospital, Memphis, Tenn., August 18, 1890; died August 25, 1890.

*History.*—This man had been ill at his home for four weeks; when admitted was in a condition of extreme prostration. His relatives gave a history of continued fever and constant delirium. After admission temperature varied from 36° to 38° C. Had several hæmorrhages from bowels before death.

*Necropsy.*—*Rigor mortis* slight; extreme emaciation; heart small and soft; examination of ileum showed swelling of Peyer's patches but no ulceration; the cæcal end of the colon contained a few small ulcers; the left lobe of the liver contained an abscess as large as an orange.

### CASE 4.

I. B.; age 20 years; native of New York; admitted to the U. S. Marine Hospital, Port Townsend, Wash., August 9, 1890; died August 15, 1890.

*History.*—Patient was received in a greatly emaciated condition, having been sick for a week or ten days with typhoid fever. A tuberculous history was also elicited.

*Necropsy.*—*Rigor mortis* and emaciation marked; typhoid ulcers of small intestine evident especially towards ileocæcal valve, and penetrating the mucous surface in a punched out appearance. Tuberculous deposits present in lung tissue and mesentery.

### CASE 5.

A. C. Q. (seaman); age 25 years; nativity, North Carolina; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., November 10, 1890; died November 16, 1890.

*History.*—He had been sick about twelve days previous to his admission without treatment of any kind; his temperature was 40.5° C., and his pulse weak and rapid, 110 per minute. His stomach was weak and irritable, and what nourishment he took was given by the rectum. Diarrhœa was constant, and tympanites and eruption



well marked. His condition grew steadily worse, and he died of exhaustion on the 16th.

*Necropsy (twenty hours after death).*—Body greatly emaciated; slight *rigor mortis*. The right lung was very adherent to the pleura and contained many deposits of tubercle, notably in the apex. The left lung was congested, and a small pus cavity existed in the base of the inferior lobe. The heart was soft and weighed 550 grams. The stomach was greatly congested, with evidences of inflammation about the pyloric end. The ulceration and destruction of the intestinal glands were well marked, but no perforation was detected. The liver weighed 2,300 grams, and appeared sound. The peritoneal cavity was distended with gas, but contained very little fluid. The kidneys were both small but sound. No further examination was made.

#### CASE 6.

J. J.; age, 32; nativity, Kentucky; admitted to the U. S. Marine Hospital, Cairo, Ill., November 26, 1890; died December 8, 1890.

*History.*—Patient's fever was high, and diarrhea troublesome. He was given opium and bismuth for the bowel trouble, antifebrin to combat fever, and stimulants were administered toward the close.

*Necropsy.*—Held. Height, 5 feet 8 inches; circumference at shoulders, 28 inches; *rigor mortis* well marked; general nourishment poor; pupils normal; heart weighed 165 g; pericardial sac contained 10 c. c. clear fluid. All valves and cavities normal; aorta and other vessels normal; left lung weighed 180 g; right weighed 174 g; both normal, except a slight induration at apex of right. Peritoneum was highly injected and the adhesions between the coils of intestine showed recent peritonitis. Stomach normal; small intestine normal; ulcers of Peyer's patches were found in the cæcum. Liver weighed 2,750 grams, normal; left kidney weighed 127 grams; right, 120 grams, both normal. Spleen weighed 75 grams. Brain and spinal cord not examined.

#### CASE 7.

##### *Perforation—Peritonitis.*

F. J.; age, 24; nativity, Sweden; admitted to marine ward, St. Vincent's Hospital, Portland, Oregon, November 11, 1890; died December 5, 1890.

*History.*—The case ran an apparently favorable course until within a week of death. Flesh and strength were well conserved, and pulse was good. But there was persistent tendency to high temperature (met with sponging and small doses of phenacetin) and occasionally to diarrhea. Pain and tenesmus absent, as also tenderness, until thirty-six hours before death. The medication employed was tr. iod. co. and phenic acid, after preliminary calomel and quinine. November 29, upon signs of failure, turpentine emulsion, quinine and whisky were substituted. Anxiety and nervousness increased. December 4, much worse; abdomen hard, tense painful, pulse small and rapid. Stimulants, morphia, turpentine. Stupes were assiduously used. His condition did not allow of operation being considered. Died December 5, 3:45 a. m.

*Necropsy (twelve hours after death).*—Body fairly well nourished; great hypostatic congestion. There was general peritonitis, visceral and parietal; intestines deeply congested and inflamed, slimy with purulent lymph. There were three small perforations 1.5 meters from cæcum. The lesions were typical of all stages, but involved a great extent of bowel; were extraordinarily numerous; many apparently on the point of perforating the peritoneum. Such a condition of things could not have been suspected from the symptoms until the last week of the disease, when a serious lesion became evident.

#### CASE 8.

E. L.; age, 32 years; nativity, Norway; admitted to marine ward, Jefferson Hospital, Philadelphia, Pa., October 1, 1890, with asthma; readmitted October 13, 1890, with enteric fever; died October 16, 1890.

*History.*—Admitted with enteric fever on the fifteenth day of the disease. He had asthma and diarrhea. The stools were liquid, dark and offensive. There was slight tympany with tenderness over the abdomen, most marked in right iliac fossa; increased on pressure. The characteristic eruption was observed on the fifteenth day (not noticed before on account of erythema, caused by hot applications over abdomen). The temperature ranged from 37.8° to 38.6°. The urine contained a trace of albumen. At 11:30 a. m. on the eighteenth day of the disease he became suddenly worse; his temperature fell to 36.1°, pulse 115, and very weak. He had carphologia and involuntary stools containing blood. Death occurred on the nineteenth day of the disease.

*Necropsy (twenty hours after death).*—*Rigor mortis* marked. The heart contained recent ante-mortem clots in both ventricles. Lungs: There was hypostatic congestion in the lower lobes of both lungs. The liver was pale and granular, tearing easily. The kidneys were normal, the spleen large, with granular degeneration, and tearing easily. There was ulceration of Peyer's patches and the solitary glands, and signs of a recent peritonitis in the neighborhood of the ileo-cæcal valve. There was a small perforation in the ileum, about three fingers breadth from the ileo-cæcal valve.

## CASE 9.

*Pleurisy, pericarditis, and congestion of lungs.*

G. B. S.; age, 19 years; nativity, England; admitted to U. S. Marine Hospital, Detroit, Mich., November 22; died November 30, 1890.

*History.*—Illness began sixteen days before he came to hospital. Was treated at his home by private physician and apparently not regarded as being seriously sick. Was not confined to bed except a small portion of the time. (*A walking case.*) On admission five rose spots were noticed on abdomen, also enlargement of spleen. Tongue was heavily coated; pulse 114; temperature, 40° C. The nervous symptoms were quite marked and grew rapidly worse; delirium subsultans, tendon, etc. Bleeding from the nose occurred on two occasions while in hospital, but there were no other hemorrhages, and the diarrhea was not very severe. The temperature was at no time as high as the day of admission, except the day before death, when the pulse also reached 125 and grew rapidly worse; could not be counted; and respiration was up to 45 per minute, and delirium was quite noisy and at times violent; the exaggerated symptoms being all due apparently to the complication of pleurisy, pericarditis, and congestion, which set in and ran rapidly to the fatal issue.

*Necropsy (nine hours after death).*—Lividity over back; *rigor mortis* well marked; general nourishment fair; pupils dilated; heart weighed 340 g.; pericardial sac adherent to apex and over left ventricle; pleuritic adhesions of recent formation to wall of pleural cavity left side, also to pericardium; no adhesions on right side. Each pleural cavity contained about 200 c. c. serous fluid, and there was also a considerable quantity in the pericardial sac; the sac was accidentally torn through in making the necropsy, and the fluid ran out. The lungs were entirely congested, the lower lobes being in the first stages of pneumonia; left lung weighed 810 grams; right, 960 grams; mesentery glands were enlarged; Peyer's patches and solitary glands thickened and ulcerated; liver weighed 2,140 grams but was apparently normal in color and consistence; left kidney weighed 195 grams, congested; right kidney weighed 170 grams, congested; spleen weighed 470 grams, and was soft.

## CASE 10.

J. O.; age, 25; nativity, Ireland; was admitted to the U. S. Marine Hospital, Chelsea, Mass., August 25, 1890, and died September 8, 1890.

*History.*—Fever had been present one week before admission. His case seemed to be a mild one; temperature never went above 39° C. Two days before his death he



was pronounced convalescent, with a normal temperature range and diarrhea checked. On the night of September 6 he secured an apple, and according to all accounts, ate it. After that he rapidly became worse, and died two days afterward. Examination of his urine showed an abundance of albumen.

*Necropsy (twenty hours after death).*—Lungs slightly congested at base, otherwise normal. Heart normal. Spleen contained a small abscess. No neighboring inflammation; weight, 420 grams. Small intestines showed several spots of acute and recent inflammation. Lower part of ileum contained ulcerated Peyer's patches, but in a healing stage. Mesenteric glands slightly enlarged. Kidneys in the large white stage of Bright's disease. Weight of right gland, 370 grams; left, 390 grams.

#### CASE 11.

P. I.; age, 21 years; nativity, Finland; admitted to U. S. Marine Hospital, Portland, Me., September 28, 1890; died October 1, 1890.

*History.*—When admitted this patient stated that he had been sick one week. Temperature,  $39.8^{\circ}$  C.; action of heart, feeble; pulse, irregular, small, and dicrotic; considerable tenderness with gurgling in abdomen; tongue, brown and dry; characteristic rose spots well developed.

*Necropsy (thirteen hours after death).*—*Rigor mortis* marked; slight lividity at dependent parts; body well nourished. The peritoneum showed no signs of inflammation. The only portion of small intestines affected was within one meter of the cæcum. Twenty-six Peyer's patches were deeply ulcerated, and near the ileo-cæcal valve the whole circumference of the intestine was involved. The neighboring lymphatics were very much enlarged. The liver was very much congested and softened; weight, 1,890 grams. The spleen was congested and softened; weight, 636 grams. Kidneys intensely congested and softened; the left weighed 210 grams; the right, 205 grams. The lungs were slightly congested at lower parts (hypostatic); some adhesions at apex of left lung. The pericardial sac was normal and contained about 15 c. c. of serum. The heart was slightly enlarged and softened; valves normal, but, entangled in the chordæ tendinæ of the mitral valve was found an ante-mortem clot about 1 c. m. in circumference and about 6 c. m. in length, greatly impairing the action of the valve.

#### CASE 12.

M. L., age, 27; born in Ireland; admitted to the U. S. Marine Hospital at Chicago, Ill., October 13; died October 18, 1890.

*History.*—Patient complained when admitted of suffering with a diarrhœa of three week's continuance. Severe rigor followed with pyrexia immediately preceding the diarrhœa; several attacks of epistaxis during same time. Temperature first night after admission was  $40^{\circ}$  C., and in the morning following it stood at  $38^{\circ}$  C.; well marked cæcal gurgling; tympanites; tenderness over ileum and spleen; several rose spots on abdomen and chest; tongue dry, coated with brown fur in center, edges very red. There were frequent and copious evacuations from bowels each day, of typical typhoid character; were discharged involuntarily during the last two days. Low muttering delirium at first which became active at times, and on several occasions he left his bed and wandered about hospital. Treatment expectant and symptomatic; delirium combated with potassium bromide; hyperpyrexia with sponge baths and acetanilid (30 centigrams) whenever thermometer registered  $40^{\circ}$  C.; diarrhœa and tympanites with turpentine stupes and turpentine internally (75 centigrams in emulsion each three hours). Diet was restricted to milk. On the 18th instant evidence of shock and peritonitis were developed, followed in a short time with coma from which he did not rally; he died at 5:30 p. m., October 18, 1890.

*Necropsy (eighteen hours after death).*—Body fairly nourished; *rigor mortis* well marked. Heart: Valves competent, no gross changes, weight 290 g. Lungs: Left, œdematous and congested; weight 340 g. Right same as left, crepitant, weight 440

grams. Abdomen: Peritoneum injected, patches of fresh lymph over surface; recent inflammation involving entire peritoneum; fæces extravasated in large amount. Peyer's patches enlarged, swollen and a few are ulcerated; one near ileo-cæcal valve perforated. Liver and spleen slightly enlarged. Liver weighed 1,560 grams; spleen weighed 550 grams.

## CASE 13.

J. F.; age, 21; nativity, England; admitted to Cleveland City Hospital October 20, 1890; died December 25, 1890.

*History.*—Had been sick one week; onset gradual; no chill; tympanites, gurgling in right iliac region, and rose spots present on admission. Bowels open, but no diarrhœa until 17th day of illness, and not extreme at any time. For two weeks temperature remained between 39.5° and 40.5° C.

*October 28.*—Laryngitis set in with cough and loss of voice.

*November 8.*—Cough increased in severity and respiration became rapid, 30 to 45 per minute; sputum rusty. This condition was due to a lobular pneumonia, accompanied with pleuritic pains, not preceded by a rigor.

*November 17, p. m.*—Temperature, 39.4° C.; respiration, 46; pulse, 128 and almost imperceptible. He rallied under stimulants and improved slowly, temperature declining and respiration becoming less frequent. Voice still remained husky. Emaciation and loss of strength extreme.

*December 13, p. m.*—Sudden attack of dyspnœa œdema of glottis. Relief was obtained, but from this time there was no power to rally. Temperature remained about normal until death.

*Necropsy, December 26, 1890 (thirty-four hours after death).*—Height, 1.71 m; circumference at shoulder, .90 m; lividity posteriorly; *rigor mortis* marked; great emaciation; pupils normal; small bed sore over left scapula; heart normal; larynx normal in appearance externally, "suffocative position" of epiglottis; general œdema of mucous surfaces; cavity just below vocal cords reduced to one-half normal size by prominence posteriorly. Section at this point showed abscess of cricoid cartilage, the cartilage necrosed and bathed in pus. Abscess had not ruptured wall; peritoneum normal. In the ileum were found several ulcers, small and in process of cicatrization. Other organs normal.

## CASE 14.

A. S.; age, 24; nativity, Sweden; admitted to U. S. Marine Hospital, Chicago, Ill., June 15, 1891; died June 23, 1891.

*History.*—About June 7 occurred the onset of the disease. He was then recovering from an attack of influenza. The symptoms of the illness previous to admission, as patient described then, were those of mild typhoid fever. Upon admission he presented no other symptoms of the disease except persistent rather high temperature, and doubtful rose-rash. Calomel, followed by quinine in tonic doses, was ordered. Sponge bath was to be given at every rise of temperature to 39°. Progress of case was apparently most favorable, when on June 22, about 1 p. m., there was sudden pain in right iliac region, with rise of temperature to 39.6°. Pain not remarkable. During the night he vomited once or twice. Turpentine stupes had been applied to abdomen and pain was relieved. By morning temperature had sunk to 36.50°; there was tympanitic distension of abdomen and pain on percussion; bowels no longer moved; there was frequent vomiting of contents of small intestines; pulse uncountable and wiry, and there had developed the genuine facies hippocratica. Death at 1 p. m.

*Necropsy.*—Rigor pronounced. Only abdominal cavity examined, and with special reference to supposed lesion. About 1,500 c.c. serum and purulent flakes, intermixed with soft contents of bowels. Peritoneum in pelvic regions inflamed. Small intestines highly congested, especially ileum, and matted with soft recent adhesion—



a purulent exudate. Many inflamed areas. Large intestine and vermiform appendix involved by contiguity. Two perforations within 40 cm. of ileocaecal valve, one large and ragged, in the midst of deep and ragged ulcer; the other much smaller.

## CASE 15.

J. S., age, 32; Kentucky; admitted to the U. S. Marine Hospital, Cairo, Ill., November 26, 1890; died December 8, 1890.

*History*.—The diarrhœa was the chief symptom complained of, which was excessive.

*Necropsy (seven hours and a half after death)*.—Height, 5 feet 8 inches; circumference at shoulders, 28 inches; *rigor mortis* well marked; general nourishment poor; pupils normal; heart weighed 165 grams, normal. Pericardial sac contained 10 c. c.; clear fluid; left lung weighed 180 grams, right weighed 165 grams; slight induration at apex of right. The peritoneum was injected, and the bowels slightly adherent. The small intestines were normal; The cæcum was ulcerated; the liver weighed 2,640 grams; normal. The left kidney weighed 135 grams; the right weighed 120 grams, normal. Spleen weighed 75 g. normal. Brain and spinal cord not examined.

## CASE 16.

F. T.; age, 39; years nativity, Germany; admitted to marine ward, Jefferson Hospital, Philadelphia, Pa., January 17, 1891; died January 19, 1891, at 5 p. m.

*History*.—On admission the patient was very weak and emaciated, and was suffering with profuse diarrhœa. He had incontinence of urine and fæces, and was slightly delirious. His tongue was dry and covered with sordes. His respirations were rapid and very shallow; his pulse frequent and weak. He had great tympanites over the abdomen; pain was marked in right iliac fossa, which was increased on pressure.

*Necropsy*.—The right side of the heart was distended and relaxed; the left side was firmly contracted. There was hypostatic congestion in lower lobes of both lungs. The spleen was enlarged, dark, and friable. Numerous ulcers were found in the ileum in the region of the ileo-cæcal valve.

## CASE 17.

J. H.; age, 39; nativity, England; admitted to U. S. Marine Hospital, Baltimore, Md., November 7, 1890; died January 2, 1891.

*History*.—Had been unwell for three or four days prior to admission to hospital. Stated he had suffered from headache, loss of appetite, diarrhœa, and fever. On admission complained of headache, loss of appetite, muscular weakness, fever, and loss of sleep. Face flushed; tongue dry and brown with reddened edges; skin moist; abdomen tympanitic; bowels loose. Temperature, 38.6°; pulse, 90, soft and full. Diagnosis, enteric fever.

On the second day in hospital his temperature rose to 40.2° C. Quinia sulph. and antipyrine, in grain doses of each, was prescribed, and repeated every six hours for several days, which kept the temperature nearly normal, but this treatment proved so depressing that it had to be stopped, and expectant and supporting treatment adopted instead. About three weeks after admission to hospital his urine was examined and found to contain considerable albumen, which condition persisted until death.

*Necropsy (seventeen hours after death)*.—*Rigor mortis*. Body emaciated and presents a waxy appearance. Brain not examined. Pericardium contained about 100 c. c. straw-colored serum. Heart pale and flabby. There was insufficiency and stenosis of the aortic valves, which were somewhat rigid from atheromatous changes progressing towards calcification. The right ventricle had undergone considerable fatty degeneration. Both ventricles contained a small quantity of dark fluid blood,

with fibrinous clots entangled in the chordæ tendinæ. The lungs were not originally diseased, but were somewhat œdematous. Liver enlarged and intensely congested; substance softened and friable. Gall bladder normal and moderately distended with amber-colored bile, with the walls much thickened, and which did not collapse when the contained fluid was withdrawn. Spleen normal in size and its parenchyma of bright red color and friable. Kidneys, parenchymatous inflammation of both organs. A mulberry calculus, the size of a hazel nut, and probably of oxalate of lime, was found in the lower part of the calyx of left kidney. Omentum dark, thickened, and softened. Stomach normal. Small intestines distended with flatus, and marked with dark or mottled spots. No evidence of inflammation or ulceration of the agminate glands apparent. Bladder not examined.

#### CASE 18.

J. M.; age, 34; nativity, Massachusetts; admitted to U. S. Marine Hospital, Baltimore, Md., August 21, 1890, and died September 3, 1890.

*History.*—Had been ill for **about** eleven days previous to admission to hospital, first with diarrhœa, followed by fever of gradually increasing intensity. On admission his temperature was 40.6° C.; pulse, 108; face darkly flushed; tongue dry and brown; abdomen tympanitic; mental faculties impaired. Treatment was symptomatic. The diarrhœa was combatted with turpentine and tr. opii, in the form of emulsion; and the febrile symptoms with aconite, gelsemium, and spiritus mindereri. The case followed the usual course of enteric fever; there was considerable amelioration of all symptoms from the day of admission to hospital, the temperature being normal on the mornings of the nineteenth and twentieth days of the disease. During the afternoon of the twentieth day he was seized with severe pains in the hypogastric region; the temperature rose to 39° C., the abdomen became intensely tympanitic, and, while the temperature rose still higher, the extremities became cold, and it was evident that perforation of the intestine had taken place, and death followed.

*Necropsy.*—*Rigor mortis* absent. Body much emaciated. The contents of abdomen only were examined. There was extensive peritonitis. About 500 c. c. of thin yellow matter was found in the pelvic region. A large number of ulcerated Peyer's patches existed in the lower portion of the ilium, one of which, about 10mm. above the ileo-cæcal valve, had ulcerated through all the structures of the intestine. Nothing abnormal was discovered in the other abdominal organs.

#### CASE 19.

G. T.; age, 28; nativity, Germany; admitted to U. S. Marine Hospital, Baltimore, Md., June 19, 1890; died, July 7, 1890.

*History.*—Had been feeling unwell for about five days prior to admission to hospital, but with no well-defined symptoms, except he was feverish and had no appetite.

On admission his temperature was 39.2° C.; pulse, 80; full and soft. Tongue moderately furred, with slightly reddened edges; bowels constipated, abdomen flacid; urine smoky; mental faculties clear. As the vessel from which the patient had been admitted to hospital had recently arrived from Savannah, Ga., the symptoms pointed towards malarial remittent fever. This was apparently confirmed, when, with the free exhibition of quinia, there was a marked reduction in the temperature during the first four days he was in hospital. (See chart.)

On the 26th and 27th of June, however, well-marked evidences of enteric lesions became manifest. Still, as the temperature did not at any time go above 39.6° C., nor the pulse rate above 96, and with no other unfavorable symptoms, the case promised to be of a mild type. At the morning visit of July 5, his temperature



was 38.4° C., pulse 72, tongue clean, and he had passed a good night. The prognosis at this hour was considered *very* favorable. About 2 p. m. of that day he was seized with a violent pain in the abdomen. This was combatted with hot poultices to abdomen and morphia administered hypodermically. A state of collapse, however, was evident, and death occurred at 7 p. m., July 7.

(*Necropsy fourteen hours after death.*)—Body well nourished. *Rigor mortis* present; hypostasis posteriorly. Abdomen distended with gas. Brain not examined. Thoracic organs normal and healthy. Abdomen: Liver normal, spleen enlarged but otherwise healthy. Peritoneum and omentum highly inflamed. In the pelvis about 500 c. c. thin, yellow fecal matter was formed. On removing and opening a section of the ilium several patches of Peyer's glands were found in a moderate state of ulceration. Near the cæcum was a ragged ulcer about one-half by 1 inch in size, which had destroyed the mucous and muscular coats to that extent, with a circular lesion through the serous coat about one-third of an inch in diameter. The immediate cause of death, therefore, was perforation of intestine, with extravazation of contents into the peritoneal cavity and consequent peritonitis.

#### CASE 20.

##### *Pneumonia.*

P. C.; age, 19; nativity, Louisiana; admitted to the U. S. Marine Hospital, New Orleans, La., May 5, 1891; died May 12, 1891.

*History.*—Upon admission the patient was very weak; had a slight cough, but no expectoration; had slight dyspnœa, the respirations being thirty-six per minute; had been having from two to three stools a day; had lost several pounds in weight, and thought that he had had some fever. This condition gradually came on after he had left this hospital a few weeks before when he had been treated for contusion of the back. There were dry râles over the whole chest. After admission his cough became severe, and he expectorated a bloody, tenacious sputum, evidently pneumonic. The expectoration lasted for four or five days and then ceased, but the cough continued. Crepitant râles were heard over the right lung on the second day. The respirations continued rapid and soon became shallow. The pulse was rapid and feeble during his illness. The temperature was irregularly intermittent. It was 36° C. for twenty-four hours before death. The diarrhœa increased. The stools were soft, and for two days before death were yellow. Two days after his admission pain and tenderness developed in the umbilical and epigastric regions. They increased and extended over the whole abdomen. There was slight tympanites. Two days before death he began vomiting, which continued until death. He was slightly delirious for two nights before death. He gradually became weaker, and died May 12, 1891, at 11:15 a. m., apparently from exhaustion. The treatment consisted in stimulants, whisky 15 c. c. and carbonate of ammonium .33 every four hours; lead and opium pills for the diarrhœa and pain in the abdomen, and milk diet, with eggs, eggnog, and milk punch. The cough and insomnia required occasionally sedative solution at night.

*Necropsy.*—*Rigor mortis* and post-mortem lividity were well marked. The body was that of a negro male adult, well developed and fairly nourished. The heart weighed 380 grams. The left lung weighed 345 grams, and had throughout its substance patches of consolidation. The right lung weighed 540 grams, and was almost completely consolidated. *The pleuræ were normal.* There were nine ulcers of Peyer's patches in the small intestines. The liver weighed 2,350 grams. The gall-bladder was filled with bile. The kidneys each weighed 240 grams. The spleen weighed 385 grams. This organ was soft, friable, and slate colored. The other organs, except the brain and spinal cord, which were not examined, were normal.

## YELLOW FEVER.

G. D. H.; age 36; nativity, Sweden; admitted to U. S. Marine Hospital, South Atlantic quarantine station, Blackbeard Island, Ga., June 24, 1891; died June 29, 1891.

*History.*—Patient was captain of American brig *Emma*, which arrived here June 23 from Havana, at which place, it is learned from another captain, the patient was on a continuous carouse. Was taken ill on June 15, two days out from Havana, and presented the following symptoms: Headache, pain in lumbro-sacral region and abdomen, partial suppression of urine, and very great redness of same; constipation very obstinate; some jaundice, some fever, and great debility. Upon admission the following conditions existed: Fairly marked icterus, more especially of the sclerotica; an appearance of stupor except when addressed; a strangely disagreeable odor; temperature,  $37^{\circ}$ ; pulse, 64; respiration, 16, superficial, and accompanied by hiccough; stomach irritable and very weak; constipation marked. On the next day pulse rose to 72, respiration to 20, temperature fell to  $36^{\circ}$ . A total suppression of urine occurred; bowels moved; stomach still irritable. On third day suppression of urine removed by free use of digitalis. Temperature rose to  $37.3^{\circ}$ , pulse to 100, and respiration to 24; vomited several times clear, coffee-colored liquid; icterus well marked; stools, 6 to 8 in number, of a dark slate color, slushy consistency, and extremely offensive, almost black. From this onward patient grew rapidly weaker, his pulse more rapid, respiration faster and more superficial purpura hæmorrhagica set in, and on June 28, at 3 a. m., he died.

*Necropsy*, seven hours after death, revealed the following: Rigidity very pronounced; color lemon-yellow, except face and hands, which were bronzed from exposure to the sun, and several spots of purpura where decomposition had already set in, which spots were leaden in color. Liver atrophied, hardened, color of box-wood, except in spots along the edge, where the same leaden hue above mentioned prevailed. Section of liver presented same hue as outside, or very similar to it. Omentum and intestines strongly tinged with the icterode hue of the skin. Being satisfied of the correctness of the diagnosis, no further examination was made, it being considering best to bury infectious corpses with minimum of delay.

## SPORADIC CHOLERA.

J. W. F.; age, 46 years; nativity, New Jersey; negro race. Admitted to St. Joseph Infirmary, Savannah, Ga., June 2; died June 6, 1891.

*History.*—The patient was taken sick at 3 o'clock in the morning with violent pains in his stomach, vomiting, and purging. He was brought to the hospital at 11 o'clock that day. He stated that he had eaten nothing to make him sick that he knew of except a few berries. When he arrived at the hospital he was in a collapsed condition. His skin was cold and clammy; temperature,  $36^{\circ}$ ; pulse, very weak. The vomiting had ceased, but his bowels continued to discharge a thin watery fluid, almost colorless and with very little odor. He complained of cramps in his legs and back, and he could not speak above a whisper. Toward evening he recovered somewhat from this condition of collapse; his bowels ceased discharging; his pulse was better and his skin warmer. On the second day he continued to improve. He was able retain some milk and medicines on his stomach and his bowels moved only a few times. On the third day he was about the same as on the second day. On the fourth day he began to sink from exhaustion; hiccough began; his respiration was labored; his voice very weak, and finally died on the morning of June 6, 1891.

*Necropsy.*—At the post-mortem examination a number of undigested stewed prunes were found in the stomach (which was congested), and it is supposed that the patient ate these prunes on the evening of the third day of his sickness, contrary to the doctor's and the nurse's orders. These prunes no doubt renewed the irritation of his stomach and bowels and caused the symptoms which ended in his death on the fourth day.



## DYSENTERY.

## CASE 1.

W. C.; age, 23; native of Mississippi; admitted to U. S. Marine Hospital, Memphis, Tenn., January 8, 1891; died January 21, 1891.

*History.*—Patient had been suffering from dysentery for two weeks prior to admission. When admitted had frequent bloody dejections and severe abdominal pain; was very weak and could retain but little nourishment. The symptoms were not controlled by treatment and the case progressed steadily to a fatal termination.

*Necropsy.*—Body extremely emaciated; tissues very dry. No pathological changes were noted except in the colon. The peritoneal covering of this viscus was deeply injected. The mucous membrane was gangrenous in patches, and there were numerous deep ulcerations.

## CASE 2.

F. P.; age, 24; native of Tennessee; admitted to U. S. Marine Hospital, Memphis, Tenn., January 16, 1891; died January 28, 1891.

*History.*—Had had dysentery for a week before admission. The bloody and mucous discharges soon gave place to offensive sero-sanguinolent stools. These were very frequent and copious. From the first there was abdominal pain of extreme severity, requiring hypodermic injections of morphia in large and frequent doses. No other treatment gave the slightest relief.

*Necropsy.*—Peritoneal coat of ileum and colon congested. Both of these viscera contained large quantities of dark serous fluid of offensive odor. The mucous coat of the colon contained numerous gangrenous ulcers. Other organs normal.

## CASE 3.

*Abscess of liver.*

P. J.; age, 28 years; nativity, Louisiana; admitted to the U. S. Marine Hospital, New Orleans, La., January 27, 1891; died February 1, 1891.

*History.*—At the time of his admission the patient stated that he had been sick about three weeks, suffering from pains in the stomach and bowels and diarrhœa, with bloody stools. The bowels then were moving a dozen times a day. He gave no history of having had a chill. His temperature was 38.4°, and varied slightly in the neighborhood of 38° until his death. He appeared to be doing well under treatment until the afternoon of January 31, when hiccough set in. The next morning, at the time of ward visit, he was moribund, and died soon after.

*Necropsy (twenty-three hours after death).*—Body of a well-nourished adult male negro. Only the abdominal cavity and contained organs were examined. The cavity itself contained considerable cloudy fluid. Inflammation of the peritoneum, with adhesions, existed about the cæcum and the sigmoid flexure as centers, being somewhat the more extensive about the cæcum. The large intestine was removed and opened, and exhibited extensive ulceration in the whole length of its internal surface. Spots of deep-colored injection were to be seen in the peritoneum, covering both cæcum and sigmoid flexure, but careful examination failed to result in the discovery of any perforation of the bowel. The liver contained an abscess of about 4 cm. diameter, situated at the highest point of the right lobe. It was imperforate and had not caused peritonitis in its vicinity.

## CASE 4.

P. P. (colored); age, 34; native of Tennessee; admitted to U. S. Marine Hospital, Memphis, Tenn., December 17, 1890; died December 27, 1890.

*History.*—He had had dysenteric discharges for more than a week before his admission; complained of intense abdominal pain; dejections sero-sanguinolent and very offensive; could retain neither food nor medicine; was in a state of collapse for three days before death.

*Necropsy.*—The lesions were confined to the colon. The mucous membrane of the latter seemed to be completely disorganized and transformed into a pulpy, gangrenous mass. The other organs were normal.

## INTERMITTENT FEVER.

### CASE 1.

#### *Hemorrhage into the pleura.*

E. B.; age, 42 years; nativity, Finland; admitted to U. S. Marine Hospital, San Francisco, Cal., March 31, 1891; died April 6, 1891.

*History.*—This patient when admitted had a very high fever, a coated tongue, and was constipated. His history was that of intermittent fever. He had no cough and on examination no lung symptom could be detected. He continued to get worse; complained of pain all over his body, although fever was somewhat less than when admitted. About thirty hours before death his condition became much worse; he complained of severe pain near the left nipple. On examining his lungs rales were heard over both posteriorly, especially the left one. About eight hours before death his pulse began to fail and his breathing became rapid and shallow.

*Necropsy.*—General nourishment fair; *rigor mortis* well marked; heart soft, friable, and in a state of fatty degeneration; the valves normal; weight 470 grams. The left lung was very much compressed, and presented on the upper lobe an old cicatrix; weight, 490 grams. The right lung weighed 620 grams and was congested and œdematous. The left pleural cavity contained about 2 pints of blood and several clots. Although careful search was made, the course of the hemorrhage could not be detected. Abdominal contents and gastro-intestinal tract normal. Liver pale brown and slightly infiltrated with fat; weight, 2,220 grams. Left kidney enlarged and soft; cortical portion atrophied; weight, 210 grams. Right kidney, weight, 150 grams. Spleen enlarged and soft; weight, 270 grams. The brain was examined, but nothing worthy of note was found, except the left meningeal artery, which was calcareous.

### CASE 2.

#### *Intermittent fever (pernicious).*

C. D.; age, 55 years; nativity, France; admitted to the U. S. Marine Hospital, Mobile, Ala., October 10, 1890. Died October 12, 1890.

*History.*—Patient said that he had been sick about ten days. Had complained of pain in chest and limbs, and some fever every evening. On the day following his admission the patient had a severe chill; the limbs were cold, face pallid and pinched, breathing oppressed, pulse scarcely felt at the wrist. He failed to react from the cold stage and died early the next day.

*Necropsy (nineteen hours after death).*—Post-mortem lividity marked, especially in the liver. *Rigor mortis* marked. On inspection nothing abnormal is noticed about the body, except a small right-oblique inguinal hernia. Cranium: Scalp normal. The calvarium removed. The dura mater was congested. Brain weighed 1489 grams, was much congested and showed minute points of extravasated blood in its structure. The lateral ventricles contained 25 c.c. of pale straw colored fluid. Thoracic cavity: Heart weighed 385 grams; valves competent and normal. Small ante mortem clot in right ventricle, and slight fatty degeneration of heart muscle. Lungs were congested and œdematous. Right lung weighed 826 grams; left lung weighed 790 grams. The



pleura was normal; each pleural cavity contained about 50 c. c. of pale fluid. Pericardium normal; contained 30 c. c. of fluid. Abdominal cavity: Liver was enlarged and much congested; it weighed 1,893 grams. The gall bladder contained 25 c. c. of bile. The stomach was of size, normal and contained a small amount of fluid, principally mucus. The mucous membrane was much thickened, congested, and softened, the congestion being especially marked at the cardiac end. Spleen slightly enlarged, weighing 222 grams and of a dull green color; also much congested. The kidneys were normal in appearance, the left weighing 167 grams, and the right 150 grams. Pancreas weighed 60 grams.

### CASE 3.

J. W.; age, 35 years; nativity, Tahiti; admitted to the U. S. Marine Hospital San Francisco, Cal., November 6; died November 18, 1890.

*History.*—From his history he seemed to have suffered from intermittent fever for five or six months. When admitted he had a slight cough, and also had a chill every other morning for several days. His abdomen was very tympanitic, but not tender. Under quinine, cough and fever disappeared, but abdomen remained tympanitic and also became tender; later ascites developed. Diagnosis: Intermittent fever—peritonitis.

*Necropsy (twenty-four hours after death).*—*Rigor mortis* well marked; body emaciated. The lungs contained a few scattered tubercles and were bound down by old pleuritic adhesions. On examining abdominal cavity a general fibrinous peritonitis was found to exist. The cavity contained about a gallon of a straw-colored fluid. Liver slightly enlarged and bound to intestines. Heart normal.

## MALARIAL FEVER REMITTENT.

### CASE 1.

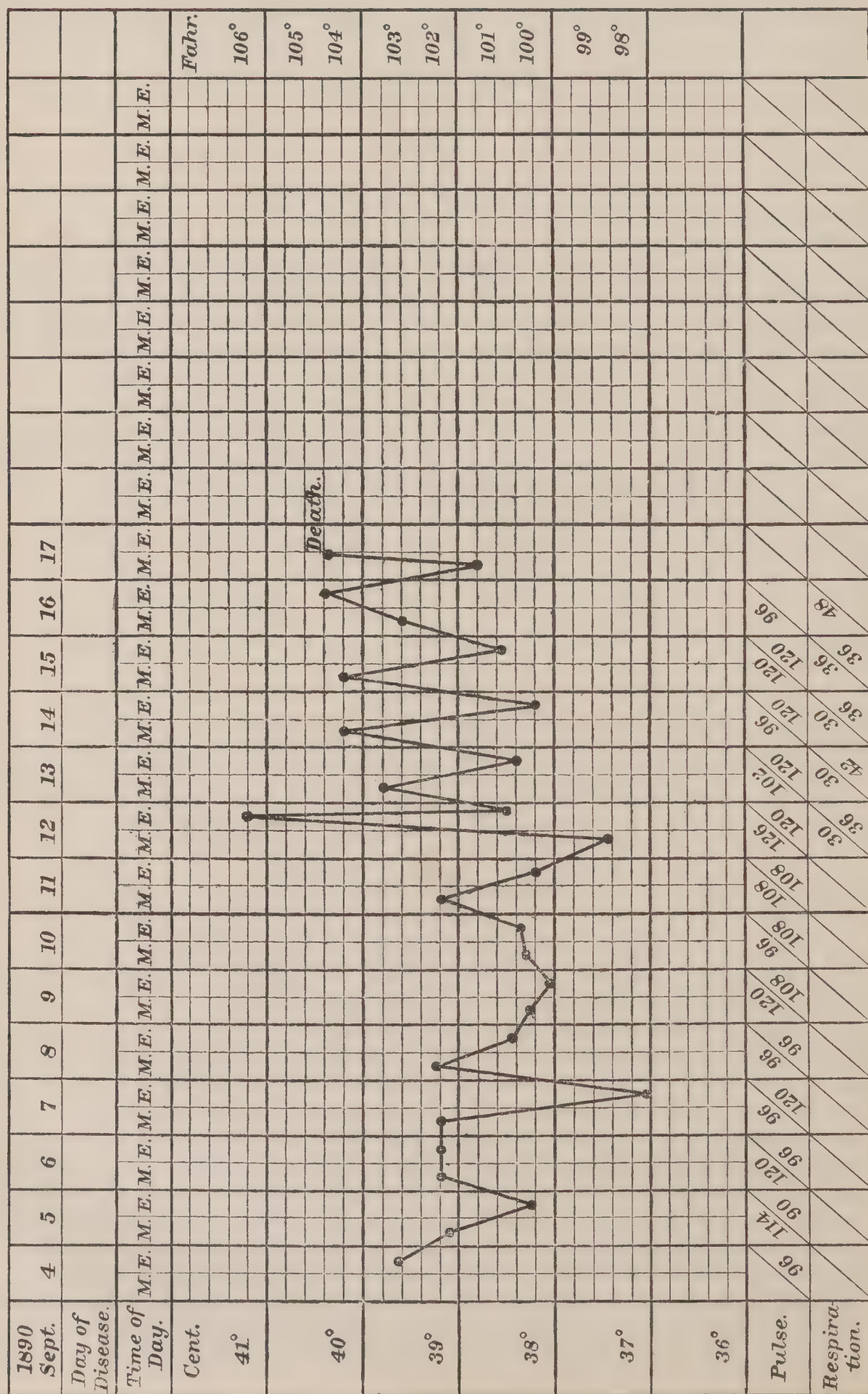
#### *Pneumonia.*

D. S.; age, 27 years; nativity, North Carolina; admitted to marine ward, St. Joseph's Infirmary, Savannah, Ga., September 4, 1890; died September 17, 1890.

*History.*—Illness began ten days ago with diarrhœa; has been having twelve to fifteen passages in twenty-four hours. Has been having chills and fever for a week. Condition on admission: Tongue heavily coated and rather dry. Abdomen slightly tympanitic and painful on pressure. Mind rather dull. No epistaxis; no vomiting. 6th, three to six dejections in twenty-four hours. 8th, mouth and tongue dry; teeth slightly covered with sordes. Delirious last night, but bowels are not so loose. 10th, passed a comfortable night; slept well and was not delirious. Pulse still quick and weak, but bowels are checked; temperature is falling; tongue cleaning off; there is less nervousness, and the general condition is more favorable. 12th (morning), mind clear, bowels moving regularly once or twice daily, and temperature nearly normal; (evening), temperature began to rise suddenly, and at 6 p. m. reached 40° C., and at 9 p. m. is 41.1° C. Pulse very rapid and weak, abdomen but slightly tympanitic, and in reply to question, says he has no pain at all. Ordered antipyrin 0.66 g. and brandy 30 c. c., and at midnight temperature had fallen to 38.5° C., but rose on the morning of the 13th to 39.9° C. No cause could be found for the sudden rise of yesterday (12th); abdomen is soft, and there is no indication of lung or heart complication. 15th, slight hacking cough, but no expectoration; tongue tremulous, dry, and coated. Physical signs indicate beginning pneumonia. Bowels again loose, and patient is very much exhausted. Death, September 17.

*Necropsy (September 17).*—Right lung: Pneumonia in second stage, involving almost the entire lung; weight of right lung 830 grams; weight of left lung 245 grams. Heart: normal in size; right ventricle fatty. Liver congested. Kidneys highly congested;

weight of right, 210 grams; left, 240 grams. Pancreas weighed 115 grams, and its substance was of the consistency of cartilage. Mesenteric glands enlarged, and in the cæcum and adjacent parts of colon and ileum a few ulcers, tubercular in character, were found.





## CASE 2.

S. T. M.; age, 19 years; nativity, Virginia; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., April 13, 1891, and died May 5, 1891. .

*History.*—He had been sick about two weeks on his vessel before deciding to go to a hospital, and when admitted was very weak and thin; his lips were parched, his tongue dry and covered with a hard brown coating, his skin was moist but hot, his pulse 110 and not strong, and his body temperature  $39.5^{\circ}$ . His stomach was not irritable, and while his appetite was gone he took considerable nourishment. His fever never left him, but was as high at times as  $40.7^{\circ}$ , and remained at that point for several hours. No drug appeared to affect this high temperature for any length of time, though all known antipyretics were tried. Quinia appeared of no use whatever. He wasted away and died of exhaustion May 4. The family removed the body and would not permit an autopsy.

## CASE 3.

R. W.; age, 33 years; nativity, West Indies; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., November 7, 1890; died November 25, 1890.

*History.*—He had been ill about two weeks before his admission to hospital, and was much emaciated and weakened. His temperature on admission was  $39.5^{\circ}$  C. and his pulse 102 per minute. Under the influence of drugs his fever was at times reduced, and his strength supported by stimulants, but the improvement in his condition was only temporary, and he died on the 25th. His temperature at times reached  $40.5^{\circ}$  C.

*Necropsy (twenty-four hours after death).*—No *rigor mortis*; much emaciation; back and shoulders much discolored. Both lungs congested and the apex of the right one hepatized. Pleural cavity dry. Heart sac dry. Heart enlarged and ventricular walls thickened; otherwise sound. Stomach intensely congested. Liver very much enlarged and solidified; weight, 3,500 grams; capsule very adherent. Gall bladder filled with bile. Spleen enlarged; weight, 500 grams; very dark and solid. Both kidneys congested and enlarged; right one weighed 250 grams, the left 300 grams. The large and small intestines were somewhat congested. No other evidence of disease was found. The brain was not examined.

## CASE 4.

*Peritonitis.*

W. M.; age, 25; nativity, Missouri; admitted to the U. S. Marine Hospital, Cincinnati, Ohio, December 16, 1890; died December 20.

*History.*—When admitted patient stated that he had been taken with a chill four days before, followed by fever and sweat. Since then he had had headache and pains in hips and knees. Pulse, 92; temperature,  $40^{\circ}$ ; respiration, 24; tongue slightly coated with a whitish fur, and somewhat dry. No pain or tenderness over abdomen. Bowels regular. States that he does not remember ever having had a day's sickness before.

*December 17.*—9 a. m.: Pulse, 73; temperature,  $38^{\circ}$ ; feels better. Bowels acted three times during night. R. Quinæ sulph. .66 t. i. d. 6 p. m.: Pulse, 80; temperature,  $39^{\circ}$ ; continues to feel better. No movement from bowels since last night.

*December 18.*—9 a. m.: Pulse, 75; temperature,  $37\frac{1}{2}^{\circ}$ ; two soft stools during night; complains of a severe pain in abdomen, which causes him to groan aloud in agony. Abdomen slightly tympanitic, and very tender on pressure. Turpentine stupe applied to abdomen at once; also sol. magendie .02 grams hypodermically. This relieved him in a very short time, but as there was a recurrence of the pain, though in a less degree, in an hour or so, he was given the same amount of morphia by the mouth every two hours during the rest of the day.

*December 18.*—6 p. m.: Pulse, 73, and so weak as to be scarcely perceptible at the wrist; temperature,  $37\frac{3}{5}^{\circ}$ ; feels much better, but still has a little pain at irregular intervals. Two soft stools during the day. But for the weak, tremulous pulse, for which it is impossible to account, would be considered greatly improved. Is bright, cheerful, and apparently strong.

*December 19.*—9 a. m.: Temperature,  $37\frac{3}{5}^{\circ}$ ; pulse, 70, and of same character as yesterday. Not feeling so well; nausea. There being no pain whatever in abdomen the morphine was discontinued as a possible cause of the nausea. R. Bismuth subnit. .66, pepsin sacch. .33, every three hours; milk with lime water every three hours; whisky 30 c. c. t. i. d. 6 p. m.: Pulse, 65; no change in character since morning; temperature,  $37\frac{1}{2}^{\circ}$ . Bowels inactive since morning; no pain; nausea much better. Except for the pulse he seems a great deal improved. The pulse is that of a man *in articulo mortis*, while the patient himself is bright and appears like a man with only some slight indisposition.

*December 20.*—9 a. m.: Pulse is so weak and tremulous it can not be counted; otherwise patient seems to continue to improve, and expresses himself as feeling much better. Tongue clean and moist. Temperature,  $38\frac{2}{5}^{\circ}$ ; respiration, 32. His mind is clear, and he complains only of feeling a little weak. Continue whisky; also give morphine .02 gm. t. i. d. 6 p. m.: Mind perfectly clear, but patient in a collapsed condition. Pulse can not be counted. Temperature,  $37^{\circ}$ ; respiration, 44; extremities cold; skin cool and clammy—it feels loose and baggy, as though the muscular tissues beneath had shrunk or suddenly contracted. No pain anywhere. Has vomited several times to-day a dark fluid which looks very much like thick, unsettled infusion of coffee. Warm bottles were applied to the extremities; whisky 30 c. c. with spirits ammoniæ aromat. 1.66 c. c. administered at once, with instructions to nurse to repeat every three hours. He continued to grow worse and died at half past ten, his mind remaining clear to the last. Fifteen minutes before he died he asked for a glass of water, took it from the hands of the nurse, and drank it, his head being raised a little by the nurse.

*Necropsy.*—Body well nourished; *rigor mortis* well marked; abdomen distended a little; pericardium a great deal inflamed, contains a small quantity of fluid; heart and lungs normal in appearance; peritoneum inflamed and closely adherent to liver; on breaking up the adhesions a thick deposit of recent lymph is seen on anterior surface of liver. Intestines inflamed and contain a dark fluid similar to that vomited before death. Liver soft and deeply congested externally. The congestion extends equally over all parts of the surface of the organ and into the liver nearly a centimeter deep, there being a sharp line between it and the rest of the liver substance. On making a section through the organ the dark zone looks like a thick capsule inclosing the liver; weight of liver, 1,750 grams. There is general peritonitis with numerous deposits of lymph gluing a part of the intestines together and to adjacent organs. Spleen deeply congested and pulpy; weight, 186 grams. Stomach inflamed and thickened. Both kidneys slightly congested; weight, 224 grams each; capsules adherent.

#### BERIBERI.

T. T.; age, 42; nativity, Norway; was admitted to the U. S. Marine Hospital, Chelsea, Mass., September 20, 1890, with diagnosis of beriberi.

*History.*—There was a partial paralysis of the lower extremities, with spots of anæsthesia; no knee jerk; sharp pains in calves of legs. Both legs were œdematous. He had been on a long cruise to Singapore. Impulse of heart very weak; no valvular murmur could be heard. He died on the day after admission, while sitting in his chair, presumably from cardiac failure.

*Necropsy (twenty-five hours after death).*—Body well nourished; general œdema present. Lungs normal; each pleural cavity contained about 700 c. c. of serum. Pleura of both sides normal. Pericardium contained 50 c. c. of serum; otherwise normal. Heart enlarged and very flabby; flattened out when laid on the table;



weight, 570 grams. One aortic cusp had a small vegetation on it. Mitral valves slightly thickened, but no evidence of regurgitation. Pulmonary valves good. Tricuspid orifice dilated, admitting four fingers. Right ventricle dilated. The muscular fibers of the heart showed marked fatty degeneration. Considerable serum in peritoneal cavity. Other organs normal.

## SEPTICÆMIA.

## CASE 1.

F. A. P.; Age, 40 years; nativity, Massachusetts; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., February 21, 1891; died May 1, 1891.

*History.*—On being admitted to the hospital the patient stated that nine years ago he had gonorrhœa complicated by a chancre. The glands in both groins enlarged but did not suppurate. Three or four months before admission ulcers appeared on different parts of the body, being the tertiary manifestation of syphilis. His appetite was poor; bowels regular. He complained of insomnia, which became a very troublesome symptom. He also had an extensive caries of both the inferior and superior maxillary bones. The teeth became loose, and, notwithstanding treatment adopted, the lesion increased, and the odor emitted was very offensive. Vomiting later became a very aggravated complication, and finally a profuse diarrhœa developed, which all remedies tried could not check. This continued up to the time of the patient's death, which occurred at 10:30 a. m. May 1.

*Necropsy* was held at 11 o'clock a. m. May 2. The general condition was that of extreme emaciation. Lungs were hypostatically congested. Heart: Post-mortem clots were found in right auricle, extending into right ventricle. Spleen soft. Liver fatty. Kidneys: Gross appearance normal.

There was extensive caries of the superior and inferior maxilla.

## CASE 2.

D. S; age, 23; nativity, Connecticut; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., November 10, 1890; died January 15, 1891.

*History.*—Patient contracted gonorrhœa about nine years previous to his admission to hospital, of which he was cured. About two or three years afterwards he noticed difficulty in urinating, and was told by a physician that he had stricture of the urethra. Shortly afterwards he was operated on and obtained relief. About one week previous to his admission patient caught a severe cold, which, to use his expression, "went right through his system," and the stricture recurred. On admission had trouble in voiding urine; was unable to reduce the prepuce behind the glans penis (*phimosis*); stated that he had been in this condition for five days. On November 11, 1890, patient was taken to operating room and etherized. Upon investigation three tight strictures of the urethra were found, and entrance into the bladder was found impossible. On examination per rectum a stricture was found which seemed to be due to a mass in the pelvic cavity pressing anteriorly and laterally upon the gut. The constriction of the rectum was so tight as not even to admit the tip of the index finger on examination. On November 11, 1890, patient had a severe chill late in the afternoon, which was relieved by proper measures. Temperature following the chill reached 41° C. On November 12, 1890, patient was again taken to operating room, etherized, and perineal section made down to an imperforate stricture of the urethra, very near the neck of the bladder. A catheter was placed in the bladder, through the perineal opening and left *in situ*, and bladder irrigated every four hours with Thiersch's solution, warm. After this operation the patient seemed temporarily to gain in strength up to November 24, when infiltration of penis and scrotum was first noticed. On November 27 a large slough was observed on scrotum, which was incised in order to allow the infil-

trated fluid to flow out. Patient complained that his back was quite sore and inflamed, and the part was dressed with vaseline and bismuth. By December 7, 1890, the scrotum had mostly sloughed away, but the line of demarcation was well marked. Patient's condition, however, was very unfavorable. On December 16 patient was taken with severe vomiting, which was promptly relieved by proper medicinal measures. From this time out patient sank steadily, becoming weaker and more and more emaciated until he finally died.

*Necropsy (thirty-one hours after death).*—Post-mortem lividity was marked. Post-mortem rigidity marked; emaciation great. Thorax opened. Left lung was non-adherent and normal. Right lung showed slight hypostatic congestion in lower lobe; was nonadherent and generally normal. Heart contained an ante-mortem clot in left auricle and left ventricle. The right auricle and the right ventricle were perfectly normal. The heart was in systole. Abdomen opened. Liver: Left lobe was "tongued;" organ was generally normal. Spleen was normal. Left kidney was a typical "surgical kidney," filled with pus and calcareous deposits. The pelvis was very much dilated. Right kidney was normal in size, but the seat of parenchymatous degeneration. The capsule was non-adherent. Bladder was filled with pus, the mucous membrane inflamed, and the walls very much hypertrophied and thickened. The intestines appeared to be generally normal. A grape seed was found in the vermiform appendix of the cæcum. Right testicle was greatly atrophied. Left testicle was slightly atrophied. Scrotum was completely broken down. Death was probably due to septicæmia, following and consequent upon surgical kidney.

## SECONDARY SYPHILIS.

### CASE 1.

J. B.; age, 28 years; nativity, England; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., February 14, 1891; died March 4, 1891.

*History.*—Patient stated that he had contracted syphilis seven years ago. He received treatment for a period of five weeks and supposed he was cured. States that no eruption followed this infection. Seven days previous to his admission to this hospital he noticed an eruption on his face and lower extremities. The cervical glands were enlarged, and mucous patches were seen on hard palate, posteriorly, and on the anterior pillars of the fauces.

*February 25, 1891.*—Tonsils inflamed and swollen.

*February 28, 1891.*—Patient complained of severe pain in left ear.

*February 28, 1891.*—6 p. m: Patient taken with violent attacks of emesis and retching.

*February 28, 1891.*—8 p. m.: Patient found in a profuse sweat; looking pale and in a semi-comatose condition; pupils dilated; vomiting and retching persistent.

*February 28, 1891.*—10 p. m.: Vomiting continues; patient in a state of collapse; pulse 68 and scarcely perceptible at the wrist; respiration 14 and heaving in character. 10.30 p. m.: Pulse 66, but stronger; respiration 17.

*March 1, 1891.*—A. m.: Patient improved; pulse good. P. m. Patient vomited his milk; complains of great pain in head.

*March 2, 1891.*—A. m.: Patient slightly improved; still complaining of headache; nausea continues; retained a little nourishment this morning.

*March 3, 1891.*—A. m.: Patient little improved, but still very weak; retained some nourishment this morning.

*March 4, 1891.*—4 a. m.: Patient taken suddenly worse; unconscious and breathing with difficulty on account of collection of muco-pus in back of throat. Died on date above given.

*Necropsy.*—Post-mortem examination was made nine hours after death. Hypostatic congestion on posterior portion of body; *rigor mortis* well marked. Body fairly well nourished; a macular eruption over legs and arms. Thorax opened. Heart examined;



pericardium normal. Externally, heart somewhat fatty in diastole and filled with fluid blood; small ante-mortem clot in right ventricle; aortic valves found to be sufficient. Mitral valve somewhat thickened and its orifice somewhat contracted. Right lung was adherent to chest wall; adhesions easily broken through, but firmer towards base of lung; it was collapsed, congested; otherwise apparently normal. Left lung: Upper lobe slightly congested and collapsed; otherwise apparently normal. Liver seems somewhat enlarged and congested. Stomach: Both stomach intestines, large and small, filled with a yellowish, oily-looking fluid. Kidney small, but otherwise normal. Mouth and pharynx: Pillars of fauces, and the tonsils ulcerated, as well as the hard and soft palate; large quantities of pus filling back part of pharynx. Other organs not examined.

## CASE 2.

H. L.; age, 38 years; nativity, Canada; admitted to Cleveland City Hospital December 31, 1890; died February 9, 1891.

*History.*—Contracted syphilis in 1876; a single ulcer of penis; indurated glands in both groins; sore throat and hemicrania, but no recollection of any eruptions immediately following. In 1886 large ulcers on shoulders, in 1889 on right leg and left thigh, in 1890 on forehead. Treated at this office frequently during past year for ulceration of pharynx, nodes on skull, and severe headache. When admitted to the hospital he was suffering from general prostration and ulceration of pharynx. Peritonitis developed later, with diarrhœa; stools pasty, of white color. Temperature, 38° to 39°; pulse, 100 to 110. Urine, pale yellow; specific gravity, 1,011; acid; albumen abundant; hyaline and granular casts. The last week his temperature became normal; pulse fell to 35 to 45, beat full, and he was semicomatose. Antisyphilitic treatment was of no avail after admission to the hospital. Several years ago he received a blow on the forehead. The skull was trephined for supposed depressed fracture and he recovered. The headache since then has not been especially located in that region.

*Necropsy (nine hours after death).*—*Rigor mortis* moderate. Emaciated. Cicatrices on forehead and in several places on body and extremities. Pupils normal, alike. Pericardial sac and heart seemed normal in general; several small vegetations on mitral valves; thoracic aorta normal. Pharynx, larynx, and trachea contained no ulcers. Left pleural sac: Adhesions at apex and base; right, numerous firm adhesions. Both lungs crepitant, deeply mottled with black. Peritoneum, adhesions to liver. Stomach, normal. Vermiform appendix, .135 meter long, hyperæmic. Capsule of liver nonadherent, but its removal ruptured several abscesses, averaging twice the size of a pinhead. Liver very dense, heavy; surface granular; section showed numerous small abscesses; lobules appeared like translucent spots; color dark brown. Kidneys large, lobulated; capsules nonadherent; texture friable. Spleen: Capsule thickened, adherent; thickness and weight about twice normal; tissue dense; section showed an agglomeration of small abscesses filled with thick pus; no appearance of normal pulp. Other viscera normal. Brain removed, but no abnormal appearances; no exostoses found on skull.

## ECHINOCOCCUS HOMINIS OF THE KIDNEYS, LIVER, AND BLADDER.

J. P. A.; age, 38; nativity, Sweden; admitted to the U. S. Marine Hospital, New York, on March 8, 1890; died August 19, 1890.

*History.*—The patient was in this hospital from June 14, 1889, to June 29, 1889, under the diagnosis of Bright's disease, chronic. At that time he complained of a steady and severe pain in the back in the region of the kidneys. He also was obliged to pass his urine every hour in small quantities, the urine containing considerable blood. At this time he was unable to keep anything on his stomach, but vomited it up immediately after eating. On examination there was tenderness in the region of the

spleen and an increased area of liver dullness. His urine was examined and found to contain large quantities of albumen. He was discharged on June 29, 1890, much improved. About three years before this time he was seized with severe pains and passed a very large quantity of blood with his urine; the pain was especially severe when he urinated. This attack lasted about a week, and he experienced no further trouble until he was seized with similar symptoms about a week before his admission to the hospital in June, 1889. After his discharge from the hospital in June 1890, he grew gradually better for several months. About three months before his admission to the hospital in March, 1890, he began to grow worse again, having returns of the same symptoms as before, at intervals which increased in frequency till he came to the hospital, at which time he had lost a great deal of flesh and had become very weak. At the time he was admitted he had no appetite and suffered from nausea and vomiting, accompanied by severe pain in the stomach. He was also troubled with constipation. He had been suffering for a long time with an organic stricture of the urethra and was admitted to the hospital under that diagnosis. Examination of the urethra showed a very small meatus and a stricture in the membranous portion of the urethra. An examination of the urine at this trial showed a large quantity of albumen. After he had been in the hospital a few days he began to complain of severe pains in the region of the bladder which led to an examination of the bladder with the cystoscope. What seemed to be a tumor was seen on the posterior wall of the bladder near the orifice of the ureter. The tumor was rounded in shape and of a dark red color; the blood vessels were seen and what appeared to be villi on the surface of the mucous membrane. The patient was again discharged "improved" on March 28, and readmitted for chronic Bright's disease. After his readmission the patient gradually improved, the vomiting after meals had been stopped, and he was not troubled with pains in the region of the kidneys and bladder, except once in a great while, and then not more than a day at a time. His urine was examined from time to time and as a rule was found to be free of albumen. The bladder was also examined several times with the cystoscope, and the examination was always attended with the same result as when examined the first time. The urine was free from blood and continued so until the night of June 3, when the urine suddenly became dark colored, and was found to contain a large quantity of blood. The urine continued to contain blood for two or three weeks, when it became clear again, but on July 22 it was again found to contain blood. He passed on an average about 2,500 c. c. of urine per diem. The examination of the urine at this time showed considerable albumen, which might be due to the presence of the blood in the urine. During this time also he had been losing weight and strength. He continued to pass blood in his urine until July 26, when the patient was chloroformed and an operation performed in order to explore the bladder. The operation was a suprapubic cystotomy. A thorough examination of the walls of the bladder revealed several blood clots but no tumor. The prostate gland had been examined before the operation and was found to be only very slightly enlarged and the gland was very hard and firm. After the operation the patient had a very severe vomiting spell; but after that was not troubled with nausea for several days, after which the nausea and vomiting returned and continued up till the time of his death. Soon after the operation he began to complain of severe pain over the left kidney, which lasted for a few days and then disappeared. He lost flesh rapidly and became much emaciated and very weak. During the period of severe pain, on the night of August 4, his temperature suddenly ran up to 40° and the pain was much increased. The rise of temperature gradually diminished during the succeeding week until, on the night of August 14, it dropped down to 36°, and remained there until August 17, when it again rose above normal, and remained at 37° or a little above until he died. His urine was again examined on August 14, and was found to contain a large quantity of albumen. For the 48 hours preceding his death he sunk very low, and it was with difficulty that he could be aroused sufficiently to understand when he was spoken to.



*Necropsy.*—*Rigor mortis* was well marked. The thorax was opened and the pericardium found to be normal. The heart was in systole, small, and the walls were in a condition of eccentric hypertrophy. The valves were all normal. There was a little old interlobular pleurisy in both lungs, which were otherwise normal. The right kidney was about two to three times the normal size and adherent to the surrounding tissues. The kidney surface and substance were one mass of cysts, and a large abscess was found near the center of the kidney. Some of the cysts contained hæmorrhages. The cysts were due to echinococci formations, as was revealed by microscopic examination. The capsule was nonadherent. The left kidney was somewhat larger than the right, and with the exception that a large abscess was found in the right, was in the same condition. The kidney was firmly adherent to the spleen and surrounding tissues. The liver was about twice the normal size, fatty and cirrhotic. The surface contained numerous cicatrices and cysts, and cysts were found throughout the liver substance of the same appearance and of the same formation as those of the kidneys. The spleen was much enlarged, firm, and apparently normal. The intestines were apparently in a normal condition. The bladder contained a ridge or elevation across the posterior and dependent portion which was found to contain cysts of echinococci formation as in the kidneys and liver. The mucous membrane of the bladder was thickened and inflamed. The brain and spinal cord not examined.

#### ACUTE ALCOHOLISM.

F. H.; age 47; born in New York; admitted to the U. S. Marine Hospital, Chicago, Ill., in October; died October 17, 1890.

*History.*—When patient was admitted to the hospital he was under the influence of liquor, and he was suffering from the effects of long-continued and deep potations; insomnia, tremens, hallucinations, anorexia, the usual attendants upon that condition, were all present. In addition, his right eye was surrounded by a puffy ecchymoma and entirely closed by it. During stay in hospital his temperature ranged from 38° to 41°. All symptoms increased in severity; hallucinations became more vivid and soon developed into the wildest delirium. Treatment consisted of pot. bromide in liberal doses; milk diet. Delirium soon became maniacal and continued so, with but a few lucid intervals until the 17th instant, when he died.

*Necropsy (thirteen hours after death).*—*Rigor mortis* marked; body well nourished; heart in diastole, normal, weight 400 g.; valves competent; right pleural cavity obliterated; right lung deeply congested and œdematous, otherwise normal; weight 450 g.; left lung in same condition; weight 670 g. Stomach: mucous membrane greatly inflamed and covered with a tenacious muco-purulent secretion. Liver engorged with blood. Glisson's capsule hypertrophied; weight, 1,520 g. Gall bladder contained 25 c. c. bile, ducts pervious; ileum deeply congested. Head: bony ridge surrounding orbit under ecchymoma intact; no injury to skull. All meninges uniformly congested.

#### RHEUMATISM.

##### CASE 1.

##### *Inflammation of pia mater and arachnoid of brain.*

R. M.; age, 42; a native of Missouri; was admitted to the U. S. Marine Hospital, St. Louis, Mo., September 30, 1890.

*History.*—Pain in shoulder, elbow, and ankle joints. Pain in these joints two weeks. Has drunk a great deal of whisky and had syphilis. Pain in joints improved, but complained of pain in the head. Pain at times severe, but did not prevent him from sleeping as a rule. Occasionally chloral and bromide of potash were given to obtain sleep. In the night of October 26, 1890, he was found comatose with stertorous respiration. He died on the morning of the 27th.

*Necropsy.*—There was a large amount of fat between the layers of the mesentery and omentum. Abdominal viscera normal in character. Left pleural cavity obliterated by old adhesions. Dura mater thickened and strongly adherent along the longitudinal fissure. Pia mater everywhere adherent to brain and could be separated from it only by tearing the brain. Convolutions somewhat flattened. Considerable sero-purulent fluid escaped when the dura mater was incised.

## CASE 2.

### *Pericarditis.*

G. H.; age, 32 years; nativity, Ireland; admitted to the U. S. Marine Hospital, San Francisco, Cal., December 5; diagnosis, rheumatism and pericarditis; died December 10, 1890.

*History.*—On admission, with the exception of slight pain in his joints, his only symptom was an intense agonizing pain in lumbar region, also irregularity in heart's action.

*Necropsy (twenty hours after death).*—*Rigor mortis* well marked. Purulent effusion into pericardium and left pleural cavity. Valves of heart normal; other organs normal.

## CASE 3.

### *Osteo-Arthritis.*

P. C.; age, 65 years; nativity, Massachusetts; was admitted to the U. S. Marine Hospital, San Francisco, Cal., November 24; died December 24, 1890.

*History.*—This patient gave a history of rheumatism for the past twenty-five years. On admission he was suffering with inflammation of both wrists. His fingers were deformed, the phalangeal joints being enlarged, and at times tender. After treatment for several days the inflammation subsided; but an intense neuralgia of the right side of head developed. He also complained of pain in the left lumbar region. Urine contained a slight trace of albumen. On the night of the 22d December he urinated quite frequently, and the following day passed his urine in bed several times. His heart's action was very feeble, and mentally he was somewhat confused. This condition continued until death. Twenty-four hours prior to his death his left knee-joint (of which he never complained) was found distended with fluid and was aspirated; drawing off about 266 cubic c. c. of pus.

*Necropsy (twenty-four hours after death).*—*Rigor mortis* well marked. Body emaciated. Right lung adherent to pleura from old adhesions; several cheesy nodules found in apex; left lung normal. Heart fatty and walls very thin; valves competent; on the aortic valve a small calcareous deposit was found. Liver of a dark brown color and very easily torn. Spleen in a similar condition. Intestines normal. Kidneys contracted and firm, with scattered deposits of urate of soda. The left knee-joint was found to contain pus. The bony surfaces were coated with a white deposit (urate soda), and a fungoid growth was found filling up the synovial pouch above patella. The cancellous portion of both femur and tibia were in a condition of fatty degeneration. The right knee-joint was similarly affected, but to a less degree. The other joints examined were found encrusted with urate of soda.

## ELEPHANTIASIS OF THE LEG—ACUTE AND CHRONIC PARENCHYMATOUS DEGENERATION OF THE KIDNEYS.

J. E.; age, 60 years; nativity, Massachusetts; admitted to the U. S. Marine Hospital, port of York, on March 1, 1890; died July 30, 1890.

*Clinical history.*—Six months before his admission his right leg became swollen and an ulcer of considerable size appeared on the inner side of the leg just above the



ankle. From that time the leg became swollen till on the date of his admission to the hospital the leg was greatly enlarged, with considerable œdema about the ankle. The skin presented a smooth, shining appearance, with nodular formations on different parts of the leg. The skin and subcutaneous tissues were infiltrated with a connective tissue growth. There were several ulcers on the leg, the largest being on the inner side of the ankle, which showed no tendency to heal, but grew larger till the leg became double the size of the other leg. The patient gave a history of being subject at intervals to severe pain, chiefly referred to the leg. The patient's general nutrition was very poor, but he gained gradually in weight and health. His leg also diminished in size and took on a more healthy appearance. On July 15, 1890, the leg was amputated just below the knee. He took the anesthetic badly, and the reaction after the operation was very poor and long delayed. For two days he did fairly well; he then grew suddenly worse, suffering from constant nausea and vomiting, not being able to retain anything. He had also a profuse diarrhœa, a low, wandering delirium, sordes upon the teeth and a urinous odor to the breath. The urine gave a large precipitate of albumen, and microscopically it was found to contain a large amount of granular, hyaline, and desquamative casts. These symptoms continued to grow worse until his death. The wound never did well; the anterior flap sloughed to a considerable extent, but remained aseptie.

*Necropsy.*—The necropsy was made eighteen hours post mortem. *Rigor mortis* was well marked. The thorax was opened and the heart found in a state of fatty degeneration. All the valves were in a normal condition, except the mitral valve, which was much inflamed. The right and left ventricles were in a state of fatty degeneration and dilatation. The lungs were adherent to thoracic parietes and the pleural cavities were obliterated by old fibrinous adhesions. The lung tissue was normal. The liver was greatly enlarged, fatty, and slightly cirrhotic. The left kidney was small and the capsule firmly adherent and contained several cicatrices of old cysts. The cortex was very much thinned. The kidney was also in a state of acute and chronic parenchymatous degeneration. The right kidney was somewhat larger than the left, but otherwise in the same condition. The spleen was small, adherent to the contiguous tissues, of a dark color, and softened on section. The bladder was much distended but in a normal condition. The brain and cord were not examined.

#### SARCOMA OF NASO-PHARYNX.

S. S.: age, 40; native of Denmark; immigrant to this country aboard the steamship *Thingvalla*; was admitted to the U. S. Marine Hospital at Stapleton, S. I., N. Y., on November 10, 1890, and gave the following history of his case.

*Clinical history.*—Patient stated that he had had a feeling of fullness and soreness in his throat dating back for two months previous to his admission to the hospital. General health had otherwise always been good. Patient found increasing difficulty in swallowing and breathing. On admission the uvula was found, on inspection, to be elongated and œdematous; patient was utterly unable to swallow solid food; patient's left eye was fixed, reflex completely wanting and there was complete ptosis. He stated that his eye had been in this condition for two weeks.

*Physical examination and inspection.*—Denied all specific history. Revealed a large growth of tissue, totally occluding the naso-pharynx and extending down behind the pharynx. Besides the ptosis the pupil of left eye was noticed to be firmly dilated, the eyeball fixed and irresponsive. Patient was kept quiet in bed on liquid diet and under the influence of morphia sulphate, the pain being excessive. Mouth and nares were kept as clean as possible by the use of listerine gargle. Hæmorrhages from the nares were frequent. The tumor continued to increase rapidly in size, breathing and deglutition becoming more and more labored and difficult. Eventually the breathing became of the Cheyne-Stokes variety, and about eight hours after the beginning of this symptom patient died, at 12:20 o'clock a. m., November 29, 1890.

*Necropsy* was performed thirty-four hours after death. *Rigor mortis* marked. Post-mortem lividity marked. Body well nourished. On removal of left half of inferior maxilla, a soft, round, gelatinous growth (a soft, round-celled sarcoma, was found filling the posterior nasal fossa and extending downwards to the pharynx. The soft palate and uvula were displaced to the right side; the origin and attachment of the tumor being to the left side of the naso-pharynx. All the sphenoidal cells were involved and the tumor extended up to and through the ethmoid bone (which was completely softened) and down the lower border of the thyroid cartilage. Glands were found greatly enlarged and the growth had so softened and involved the bone that it extended up into the brain. This, no doubt, was the cause of the Cheyne-Stokes breathing which occurred previous to death. Thoracic and abdominal viscera examined. All found perfectly normal with the exception of more or less hyperæmia being present and an ante-mortem clot in the right ventricle of heart.

#### SARCOMA OF HAND—HEPATIC ABSCESS.

J. Y.; age, 30; native of South Carolina; was admitted to the marine division of the St. Francis Xavier Infirmary at Charleston, S. C., on December 27, 1890, and died on January 2, 1891.

*History*.—When admitted to hospital the patient presented a tumor in the right palm as large as a walnut, painful, and of rapid growth. He remembered to have bruised the palm at this point some three months before, and soon after the growth appeared. The pain was attributed to the tension, and the tumor thought to be a ganglion of the flexor tendon sheath. On the 28th an incision was attempted, but the pain was so intense that the growth was not removed. Breakfast having been taken it was determined to wait until the next morning, when it was removed. The growth was peculiar, and to the eye was similar to the contents of a sheath tumor. A number of nodules as large as a bird's egg were removed from a nest which burrowed deep into the palmar tissues. As many as eight or ten of these were removed, the largest retained. Drainage was provided for, since oozing was quite free. Reaction from chloroform prompt, but there was intense pain in the hand. Morphine had to be freely used. Some nausea and vomiting during the day with hiccough, and nervous prostration. Wound dressed on 30th, gauze removed and irrigation with Thiersch's solution; temperature, 37° C. Pulse 100. Much hiccough during night; painless; no desire for food; in fact, the constant hiccough caused the ejection of the food ingested. Spirits aromatic ammonia and creosote ordered for same; milk punches and bovine.

December 31, no change in symptoms except that he rested better. January 1: Temperature, 38° C.; pulse, 120; great nervous restlessness; pain in hand; hiccough paroxysmal and violent; local applications over epigastrium. At 8 p. m. temperature 36° C.; pulse, 130. Hiccough at intervals.

January 2, he died in a violent paroxysm at 2 a. m.

*Necropsy (held eight hours later)*.—Body of an adult colored male, poorly nourished; 180 c. m. in height; rigor marked; no stasis. Wound of right palm, linear and 2.5 c. m. long; incision packed loosely with gauze; this removed and cavity explored; the sheath of the flexor sublimis digitorum was dilated and the tendon pushed to the inner side, and much flattened from pressure. Deep in the cavity was a nodule not found during operation, and which seemed to have gotten beyond the sheath covering. This was saved and carefully hardened. Everything about the trivial wound was sweet and clean. All organs of the body were fully examined and found of normal appearance, save the liver, which had on the surface of its left lobe anteriorly a small abscess containing 50 c. c. of laudable pus. The liver surface at its site was adherent to the adjacent stomach wall. In tearing loose this lymph the abscess ruptured. The cavity was as large as a small lemon and its wall was fibrous. It was not of recent formation and there were no antecedent symptoms of purulent absorption. In searching for a possible cause of this pus focus the entire



intestinal canal was found normal and the only probable point of infection was a suppurating (old) lymph gland of the groin. After preparation the portion of tumor gave typical slides of spindle cell sarcoma, with an occasional multinuclear cell.

#### CANCER OF MEDIASTINUM.

H. G. M.; age, 43 years; nativity, England; admitted April 24, 1891; died May 4, 1891.

*History.*—When admitted he was suffering from dyspnoea and vomiting. There was some cough and sputum of a bronchial character. There were abundant moist valves over the entire chest, and dullness or percussion posteriorly, and at the lower portion of the lungs anteriorly.

*Necropsy.*—There were old adhesions of the heart to the outer layer of the pericardium in several directions and an abnormal quantity of fluid in the sac. The lungs were deeply congested throughout, but presented no other pathological change. The œsophagus, about 7 cm. from the stomach, presented a growth presumably cancerous, occupying its entire circumference and pressing upon the transverse aorta. The latter was much dilated and showed extensive calcareous degeneration. The liver was small and of a yellow color, weighing 1,450 gm. The cortical portion of the kidney was considerably atrophied; the left weighed 150 gm. and the right 165 gm.

#### CARCINOMA OF LUNG.

J. B.; age, 25; nativity, America; admitted to the U. S. Marine Hospital, Cincinnati, Ohio, September 12, 1890; died November 5.

*History.*—Patient was a monorchid; and was admitted to the hospital June 20, 1890, for carcinoma of the testicle. The organ was extensively involved, and in removing it it was necessary, in order to get above the disease, to go up almost as high as the external abdominal ring to excise the cord. The wound united readily, and he was discharged at his own request.

July 10, the scrotum around the wound became somewhat inflamed, but he preferred being at home and getting office relief, thinking the redness would wear away. The inflammation, however, grew steadily worse; the scrotal tissues contracted into a hard nodular mass, the pain in which was excessive. He was admitted to the hospital again August 24, and the following day the entire scrotum removed. The wound united readily; all trouble in the region ceased, and he was discharged apparently well September 8. He returned September 12, very anæmic, suffering from diarrhoea, cough, and severe rheumatic pains through his limbs and body. There was complete dullness on percussion over lower half of both lungs and partial dullness over upper. Auscultation revealed loud moist rales everywhere over both lungs. There was no bulging of chest wall on either side nor enlargement of supraclavicular lymphatic glands (attention directed to this fact, as cancer of the lung was suspected). The pain in right mammary and epigastric region was intense. His face, neck, and chest would at times become deeply congested, leading to the conclusion that there was some impediment to the return flow of blood through the superior vena cava, the congestion lasting from one to several hours and followed by extreme paleness. Morning temperature, 37°; evening, 38°. Pulse ranged from 70 to 85. The diarrhoea and pains in the limbs were controlled in three or four days, but the pain in the chest and epigastric region grew worse rapidly. At first temporary relief was given by occasional hypodermic injections of morphia .016 gm.; but in a few days the pains became so severe that it was necessary to keep him constantly under the influence of morphia, .05 g. being given every two or three hours, and frequently at even shorter intervals. He coughed a great deal, the expectoration being purulent and very tenacious. He had frequent attacks of nausea and vomited considerably. He emaciated rapidly until for several days he was little

more than a skeleton. His mind remained clear most of the time to the last. He died on date given above.

*Necropsy (twenty-seven hours post mortem).*—Body emaciated to a skeleton; hypostatic congestion posteriorly; abdomen, neck, and upper part of chest discolored by putrefactive changes. *Rigor mortis* absent in upper extremities, moderate in lower. Tissues surrounding scar of wound made in removing scrotum appeared perfectly healthy. Pericardium very much inflamed; contains 30 c. c. of fluid. Heart small; weight, 160 gm. Adhesions over both lungs to chest walls. Both lungs feel nodular, and are filled with tubercles throughout; pus exudes everywhere from cut surface. Liver congested; weight, 1,420 gm. Stomach so much contracted that it is little more in circumference than the colon. Its walls are almost 1 cm. in thickness. It contains a small amount of yellowish viscid fluid, and its mucous membrane, in addition to being intensely inflamed and covered with pus, is contracted into several exceedingly large rugæ running longitudinally. Peritoneum and mesentery congested. Both kidneys small and deeply congested; malpighian pyramids somewhat indistinct. The capsule of left kidney adherent; that of the right strips off readily. Both are nodular, more especially the left. The left weighs 90 gm.; right, 120 gm. As stated in the history, this patient was a monorchid. As he declared several weeks after the removal of the testicle that he experienced the same pleasure in coition, and had cohabited frequently with his wife after leaving the hospital, each time having orgasm and ejaculation, it was thought the absent testicle might be found in the abdomen. The most careful search, however, failed to reveal it.

#### CANCER OF LIVER.

A. McL.; age, 46 years; nativity, Scotland; was admitted to the U. S. Marine Hospital, New Orleans, La., August 1; died October 25, 1890.

*History.*—The patient was transferred from Galveston to New Orleans, having been in the care of the Marine Hospital Service at the former port for eight months. The diagnosis originally made of his disease was malarial cachexia. He had a slight, irregular fever, a persistent diarrhœa, and was anæmic in appearance. There was œdema of the lower extremities. He gave a history of malarial fever. As the disease progressed it was possible to feel a hard, lumpy tumor in the region of the liver, through the abdominal wall. Before death took place the condition of the patient became one of the most extreme debility.

*Necropsy (twenty hours after death).*—Body of an adult white male, poorly nourished. *Rigor mortis* not marked. The heart weighed 250 grams and was normal. The lungs and pleuræ were healthy, the left lung weighing 660 grams and the right 1,100. The liver was the seat of a scirrhus cancerous growth, which had extended to the pyloric end of the stomach, producing stricture of that orifice. The growth also involved the pancreas. The liver weighed 4,000 grams, the pancreas 230 grams. The kidneys were pale in color, the left weighing 170 grams and the right 140 grams. The spleen was slate colored, hard, and granular, and weighed 250 grams.

#### CARCINOMA OF STOMACH.

J. H.; native of Norway; age, 37; was admitted to the U. S. Marine Hospital, Stapleton, Staten Island, New York, September 12, 1890, and gave the following history:

*History.*—Patient stated on admission that he thought he had malaria. He said that he had severe pain in his stomach after eating, with intense burning; vomited after taking food. The day after admission he complained of constipation and severe abdominal pain. He said that he had vomited frequently for the last six weeks previous to admission. On October 5 he complained of constant pain in epigastric region, at times lancinating in character, and extending over entire abdomen. He had slight tenderness on pressure in epigastric region. Bowels moved by enemata.



October 19.—A round hard mass could be felt in median line midway between ensiform appendix and umbilicus, apparently circumscribed. Nourishment was given per rectum, as he was unable to retain food in stomach. He was discharged, not improved, October 21, 1890, and was readmitted October 22, 1890, for carcinoma of pylorus. The patient sank steadily, finally dying on the day of readmission, October 22, 1890, at 3:30 p. m.

*Necropsy.*—Post-mortem examination was made nineteen and a half hours after death. *Rigor mortis* marked. Post-mortem lividity marked. Thorax opened: Pleural cavity obliterated by old pleuritic adhesions. Left lung examined: was adherent to diaphragm; anterior and posterior adhesions were found; a cicatrix was found in the apex; the apex also contained calcified material; rest of the lung was normal. Right lung examined; anterior and posterior adhesions were found; the lung was very small. Heart examined; ante-mortem clot was found in the right auricle and right ventricle; left auricle and left ventricle were normal. Abdomen opened: Liver examined; was adherent to diaphragm; one section was found hyperæmic, otherwise normal. Stomach examined; was largely dilated; a carcinoma was found at the pylorus which almost occluded the orifice. Pancreas examined; was found adherent to stomach, otherwise normal. Spleen examined; was dark and shrunken. Right kidney examined; normal. Left kidney examined; normal.

## TUBERCLE OF LUNGS.

### CASE 1.

A. S.; age, 38 years; nativity, France; admitted to Cleveland City Hospital July 1, 1890; died August 17, 1890.

*History.*—Patient could give nothing of family history. His cough began in June, 1889. He was under treatment in Marine Hospital at Detroit from November, 1889, to June, 1890. On admission at Cleveland he had severe cough, profuse expectoration, and night sweats, and was emaciated. Examination showed that cavities were forming from breaking down of lung tissue. Uncontrollable diarrhœa ensued, and the consequent inanition speedily led to death.

*Necropsy (thirty hours after death).*—Height, 1.86 m.; circumference at shoulders, 0.88 m. Lividity posteriorly. *Rigor mortis* very slight. Body emaciated. Right pupil normal; left dilated. Heart small and anæmic. Pericardial sac normal. Valves of heart competent. Right ventricle noticeably larger than left. Bronchial lymphatic glands enlarged. Left lung, extensive adhesion in pleural cavity. The abscesses in this lung ruptured in many places in the process of removing it. At the apex was a cavity holding 125 c. c., and many smaller ones were scattered through the whole lung; no adhesions in right pleural cavity. The lower and middle lobes of right lung were crepitant, but contained scattered tubercular nodules; upper lobe contained many pus cavities. The jejunum contained two small ulcers, the ileum several of small size; the large intestine extensively ulcerated, many of large size. At the ileo-cæcal valve an ulcer had almost perforated. The rectum contained many ulcers, but more scattered and smaller than in cæcum and colon. Liver showed signs of fatty degeneration. Gall bladder normal. Left kidney large and lobulated; right, large, but lobulation less marked.

### CASE 2.

J. K.; age, 38 years; nativity, New York; admitted to Cleveland City Hospital June 22, 1889; died August 20, 1890.

*History.*—Family history unknown. Cough and loss of strength began in 1887. Since December, 1888, has been continuously in marine hospitals. There has been persistent fever, cough, progressive emaciation, and loss of strength; night sweats at times, and severe diarrhœa and œdema of lower extremities during last few weeks. Progressive degeneration of consolidated lung tissue.

*Necropsy*.—Height, 1.8 m.; circumference at shoulders, 0.9 m.; lividity marked. *Rigor mortis* in moderate degree; body greatly emaciated; pupils normal; heart, small, anæmic. Pericardial sac of normal appearance; contained 15 cm<sup>3</sup> of clear fluid. On the aortic and ventral valves were small vegetations; heart walls thinned; thoracic aorta atheromatous: vegetations and partly calcified plates on surface. Left lung: Pleural cavity contained very firm adhesions; lung torn in removing; upper lobe contained many small pus cavities; tuberculous nodules through whole lung. Right lung: very firm adhesions in plueral cavity, the cavity almost obliterated; upper lobe full of small cavities; tubercles disseminated. Stomach: larger portion lay in front of and below the left lobe of the enlarged liver. The left margin of liver caused a constriction of stomach, and beyond this was an enlargement (the pyloric end) behind liver. In the ileum, 1 meter from cæcum, was noticed a diverticulum, 8 cm. long, large enough to admit the thumb. Just within the mouth of the vermiform appendix was a very thin, triangular piece of bone (chicken?), each side 1 cm. long. No surrounding inflammation. In the ascending and transverse colon were 12 small ulcers. Liver: Enlarged; weight 2,750 g.; section slightly translucent, tough, gristly, and showed amyloid degeneration; on the posterior surface a large depression marked site of right kidney. Gall bladder normal. Kidneys: Both large, translucent, and showed amyloid reaction. Spleen small.

### CASE 3.

T. H. S.; aged 66 years; nativity, Maine; admitted to the U. S. Marine Hospital, Portland, Me., February 26, 1890; died October 2, 1890.

*History*.—This man was under treatment in hospital at the port of Bangor, Me., from October 31, 1889, to February 24, 1890, when he was transferred to this hospital. Upon admission he was very weak and considerably emaciated; stated that he had suffered from more or less cough for several years, for which he had been treated in hospital on several occasions. No history of pulmonary hemorrhage, no unusual symptoms were observed. He kept in bed constantly during his residence in hospital, and under supporting treatment remained comparatively comfortable up to the last.

*Necropsy*.—Body very much emaciated. *Rigor mortis* marked. The right lung was studded throughout with tubercles, and solid except at several points where the tissues had broken down and small pus cavities had formed. The pleura was adherent in several places. The left lung was emphysematous and contained throughout a large number of tubercles the size of pinheads. No pleuritic adhesions. The heart twice the normal size, and fatty; the veins on its surface were greatly distended. The right auricle was dilated, and distended with blood, its size being as large as a man's fist; the walls were thinner than normal. The right ventricle was dilated and contained a large-formed blood clot firmly connected with its wall. The left ventricle was somewhat dilated, as was also the left auricle. The walls of these cavities were normal in thickness. The valves were all competent, except the mitral, one of whose segments had a contracted border and pouched condition, permitting regurgitation observed during life. The thoracic aorta was dilated in a fusiform shape to about twice its normal size, and contained patches of calcareous deposit. The walls of stomach were much thickened, and at the center of the greater curvature it was considerably contracted, giving the organ an hour-glass appearance.

The liver was about twice the normal size, and of the nutmeg variety. In consistency it was firm and fibrous. The kidneys were slightly enlarged, firm, and fibrous in character, their walls containing numerous small retention cysts; the left one contained a small abscess. The spleen was about twice the normal size, firm, and fibrous. The pancreas was larger than normal and likewise firm and fibrous.



This man had been very intemperate for many years, and evidently the arterial system throughout was involved in a low form of inflammation, due to alcohol, resulting in degeneration of the tissues and ultimately in more or less destruction of the functions of the organs.

## CASE 4.

A. W. (negro); age 29 years; native of Tennessee; was admitted to the main ward of the Evansville City Hospital July 7, 1890; died September 8.

*History.*—Patient had been sick several months and on admission was suffering with advanced tuberculosis of the lungs—having cough and copious expectoration, high temperature, profuse sweats, progressive emaciation, and severe pain in both sides, but especially in the left about the cardiac region. The physical signs indicated the left lung as the principal seat of disease, although both lungs were affected. The pulse was notably rapid and weak. The creosote treatment produced no improvement, and morphia was necessary on account of violent cough and pain in the side. On the day of his death the patient said he felt better and was lying in bed whistling. Soon after he attempted to sit up in bed, but suddenly fell back, expectorated a few mouthfuls of blood, and was dead.

*Necropsy.*—No *rigor mortis*; body extremely emaciated; pupils moderately dilated. On opening the chest the pericardium was found firmly adherent to both pleuræ and also to the entire surface of the heart, there being no pericardial cavity. On stripping the pericardium from the heart, a granular surface, beset with small gray tubercle, was presented. The heart was dilated, the walls were partially transformed into fat, and so thin—in the right auricle being not more than 2 mm. in thickness—that if they had not been re-enforced by adhesion to the pericardium, rupture would have been inevitable. Nothing remarkable was observed in the valves. The left lung was adherent, the pleural cavity being obliterated. The upper lobe was the seat of one very large cavity whose walls were formed mainly by the pleura, the lung tissue having nearly all disappeared. This cavity contained a large blood clot, obviously the immediate cause of dissolution. The lower lobe was filled with tubercular masses, some of which had broken down, forming several small cavities. The right lung was only slightly adherent, and the apex contained a few tubercular masses, some of which were soft. The lower lobes were in comparatively good condition. Tubercular deposits were also found in the liver and spleen, which, otherwise, appeared normal. The kidneys were slightly congested.

## CASE 5.

E. P.; age 20 years; nativity, Kentucky; admitted to the U. S. Marine Hospital, Cincinnati, Ohio, June 19, 1890; died October 20.

*History.*—When admitted patient was suffering from well marked tubercle of lung. About the middle of July his ankles became oedematous. The oedema extended upwards quite rapidly until in a few days there was general anasarca. The urine was loaded with albumen. One night toward the latter part of September he became comatose; the skin was dry, and the kidneys inactive. Under hypodermic injections of pilocarpine, which produced very free diaphoresis as well as diuresis, he recovered consciousness in thirty-six hours. He rallied from the attack so as to be able to walk about the ward, and continued up until within two days of his death. The oedema gradually disappeared. At the time of his death there was not a sign of it remaining. He continued to grow weaker, and died on date above given.

*Necropsy (twenty-four hours post-mortem).*—Body much emaciated. *Rigor mortis* moderately well marked. Pericardium pale; contains about 30 cm<sup>3</sup> of fluid.

Heart normal in size and appearance; fibrinous clot in left ventricle, extending into auricle. Valves normal. Right pleura firmly adherent in patches to chest wall. Right lung is one mass of tubercles. Left lung tubercular throughout; no adhesions of pleura to chest on this side. A small amount of fluid in both pleural cavities. Stomach contained some fluid. Spleen and liver normal. Both kidneys are large, but beyond this appear perfectly normal; the left weighs 272 grams; the right 262 grams.

#### CASE 6.

P. C.; native of Ireland; age, 27; admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., March 30, 1888, for acute nephritis, and discharged April 16, 1888, improved. He was readmitted May 18, 1888, for bronchitis acute, subsequent complications, dyspepsia, and chronic nephritis. He was discharged June 6, 1888, improved. Patient was readmitted November 3, 1890, died November 19, 1890, and gave the following history:

*History.*—He stated that he had felt much better after leaving this hospital the last time up till five days previous to readmission. He said that he had coughed a great deal for five days previous to readmission, difficulty in breathing, pain in chest and back, slept badly, appetite good, bowels regular. On physical examination the following condition was found: Physical signs: Left lung anteriorly, flatness on percussion over apex, auscultation revealed cavernous respiration over apex, sibilant and sonorous râles over rest of lung. Posteriorly, sibilant and sonorous râles were heard over entire lung. Vocal resonance increased at apex. Right lung anteriorly, dullness on percussion over entire lung. Tubular breathing was heard at apex and sibilant râles in rest of the lung. Posteriorly, dullness on percussion, broncho-vesicular breathing heard over entire lung. Urine contained albumen. Patient gradually sank, finally dying, suddenly, November 19, 1890.

*Necropsy.*—Post-mortem examination was made thirty hours after death: *rigor mortis* marked; post-mortem lividity marked. Thorax opened. Pleural cavity obliterated by old pleuritic adhesions. Right lung examined; so thoroughly adherent that it was cut in situ. Numerous tubercular nodules were found; rest of the lung in a condition of cheesy degeneration. Left lung examined; the lung was contracted; large cavity at apex; rest of the lung a hard cicatricial mass. Heart examined; right ventricle distended and filled with clots; some ante-mortem. Left ventricle was hypertrophied and contained ante-mortem clots. Auricles were normal; valves normal. Abdomen opened: Liver examined, enormously enlarged, measuring 33 cm. transversely, 27 cm. anteroposteriorly, and 12 cm. in thickness at the back part of the right lobe. Large cheesy masses disseminated throughout the entire liver. Spleen examined: Enlarged, dark in color, and soft. Left kidney examined: Enlarged; capsule slightly adherent on anterior surface below. Cortex enlarged and mottled. Old cicatrices were found in cortex. Right kidney examined: "White kidney" capsule nonadherent; perinephritic abscesses. Tuberculous ulcer at the superior portion. Cheesy masses were found in the mesenteric and retroperitoneal glands. The right testicle was five times larger than the usual size. On section large cheesy masses were found throughout the testicle. Left testicle was atrophied.

#### CASE 7.

P. M.; age, 40 years; nativity, Ireland; was admitted to the U. S. Marine Hospital, New Orleans, La., June 28; died August 13, 1890.

*History.*—On admission this patient gave a history of rapidly progressing pulmonary consumption. Inspection shows the characteristic chest of tubercular



disease, auscultation and percussion showing dullness over apices of lungs, with broncho-vesicular breathing, diminished on left and exaggerated on right side. He gradually failed, dying of exhaustion.

*Necropsy (seven hours after death).*—Body that of a small, middle-aged white man, much emaciated. *Rigor mortis* well marked; heart, weight, 265 grams, normal; pericardial sac contained 500 c. c. of lymph; blood vessels leading to heart thinned and dilated; lungs, left, weight 1,600 grams, and an almost solid mass of tubercle; right lung, weight 545 grams, congested and full of serum; left pleural cavity obliterated; right normal; liver pale, fatty, friable; weight 1,800 grams; gall bladder distended with fluid bile, and containing a gallstone .015 cm. diameter. Pancreas, weight 60 grams, soft, fatty. Spleen, weight 260 grams, friable, fatty.

#### CASE 8.

J. P. K.: native of Nova Scotia, sailor; age, 62 years; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., on July 30, 1890; died August 17, 1890.

*History.*—Patient stated that he had had a bubo twenty-five years ago, but had never had a chancre to his knowledge; also stated that he had been subject to malarial fever for nearly twenty-five years. About eight years ago he had a fistula of the spongy portion of the urethra, which closed up after a while. For the last twenty years or so he has had a bad cough and has spit up a great deal of yellow, tenacious mucus. Has been subject to night sweats during this entire period. For the past eighteen months he says he has suffered from diarrhœa, and his appetite has been very poor. At intervals for a number of years he has suffered from pains in the left breast.

*Condition on admission.*—Patient is troubled with cough, night sweats, diarrhœa, and great loss of appetite. The place where he had the fistula has broken out again, and he experiences great pain in passing his water. On examining the fistula it was found to open to the right of the median line of the perinæum into the prostatic portion of the urethra, instead of into the spongy portion, as the patient's statement would have inferred.

Physical examination disclosed consolidation at apices of both lungs. Patient sank steadily from time of admission until August 17, 1890, when he died at 1:40 o'clock p. m.

*Necropsy.*—Post-mortem examination was held about twenty-one hours after death. *Rigor mortis* was well marked. Post-mortem lividity was well marked. Thorax opened. Left lung, lower lobe was seat of tubercle and the arteries were atheromatous. Right lung was adherent anteriorly. Upper lobe in comparatively good condition. Lower lobe was in the same condition as the corresponding lobe in the left lung. Pericardium was found normal. Heart was covered with fat and was fatty. Muscular tissue was pale—resembled myocarditis. On the right side a large antemortem clot, extending from the ventricle into the auricle, was found. All the valves were normal. Abdomen opened. Liver was the seat of the fatty degeneration and infiltration usually found in tuberculosis. Was friable as well. Spleen was very adherent, very soft, and fatty. Left kidney was small, granular, filled with cysts and the seat of an abscess. Right kidney was in about same condition as the left—*very fatty*. Bladder was the seat of cystitis. Prostate gland was entirely destroyed. Brain was not examined. Spinal cord was not examined. Larynx was the seat of chronic catarrhal inflammation of the entire mucous membrane.

## CASE 9.

J. R.; age 28; nativity, Ireland; admitted to U. S. Marine Hospital, New York, June 5, 1890; died July 11, 1890.

*History*.—On admission he was suffering with tubercle of upper lobe of right lung of five weeks' standing. Process extended rapidly, involving both lungs. Patient ran very high temperatures, but exhibited remarkable vitality in refusing to go to bed, when temperature ranged up to 40 C.

*Necropsy*.—External appearance, emaciated white male, medium height. Lividity slight. *Rigor mortis*, slight. Nourishment poor. Pupils nil. Heart pale, flabby, filled with soft clots. Valves and muscle walls normal. Lungs, left pleural cavity obliterated, lung firmly adherent to all walls. Lung hard, and on section filled with tubercular masses and cavities, almost solidified. Right pleural cavity and lung same as left. Liver adherent to surrounding parts, capsule adherent and covered with thick adhesions. Left lobe elongated. Fatty degeneration. Left kidney and right kidney both normal. Spleen enlarged, adherent to surrounding viscera. Brain and cord not examined.

## CASE 10.

E. H.; aged 46; nativity, Germany; admitted to Marine Hospital, New York, September 9, 1889; discharged, improved, April 4, 1890; readmitted April 16, 1890; died June 12, 1890.

*History*.—Caught cold nine months previous, had cough, emaciation, sweats, and purulent expectoration. Physical examination showed slight involvement at both apices (tubercular). Bacilli found in sputum January 21, hæmoptysis. After readmission, lungs much more generally involved. Physical examination showed signs of cavities at apices. Gradually sinking.

*Necropsy*.—External appearances, emaciated. Lividity and *rigor mortis* slight. Left pleural cavity contained some fluid; adhesions at apex of lung to posterior wall. Lung, surface nodular; anteriorly, slight emphysema. Upper lobe found to be one large cavity, infiltrated with tubercular material. Right pleural cavity filled with sero-purulent fluid, and closely adherent lung to upper thoracic walls. Adhesions so firm that it is impossible to remove lung. Lung filled with tubercular masses and cavities. Heart very small, and in diastole; valves normal. Liver slightly enlarged and fatty. Gall bladder distended. Right kidney pale, smooth surface, enlarged, capsule adherent in patches. Cortical substance thinned and fatty. Markings fairly distinct. Left kidney same as right, with more cloudy and indistinct cortical markings. Spleen enlarged, dark blue color, firm consistency. Pancreas normal. Brain and cord not examined.

## CASE 11.

F. B.; native of Scotland; aged 26; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., April 30, 1890; died October 23, 1890.

*History*.—Patient stated that he fell in a convulsion five months ago, previous to admission, on board ship at Rio de Janerio, and was unconscious three hours. He was taken to a hospital, and remained in the hospital six weeks. During his stay in the hospital he stated that he had five convulsions every day; pain in his stomach and vomiting after eating, and considerable flatus in stomach and intestines. He said, from the time of his dismissal from the hospital at Rio de Janerio up to his admission to the U. S. Marine Hospital, that he had a cough, his stomach was irritable, and would not retain solid food. On admission he coughed a great deal and expectorated freely; he also had night sweats. On physical examination the following condition was found: Right lung, dullness over entire superior lobe; sub-crepitant and fine moist râles were found on



auscultation, also tubular breathing. Left lung, anteriorly, sibilant and subcrepitant râles were heard over entire lung; dullness at apex, on percussion, posteriorly.

*May 9.*—Cough was very annoying.

*May 12.*—He complained of severe pain in left side.

*May 19.*—Had slight hemorrhage.

*May 30.*—Had hemorrhage from nose.

*June 27.*—Cough very annoying.

*July 18.*—He complained of very sore throat.

*July 28.*—Cough very annoying.

*August 24.*—He complained of severe pains in lower extremities.

*September 22.*—He had some pain in right side (pleuritic). The patient grew weaker steadily, but did not stay in bed all the time. He finally died suddenly of hemorrhage from the lungs on October 23, 1890, at 6:30 o'clock, p. m.

*Necropsy.*—Post-mortem examination was made sixteen hours after death.

*Rigor mortis*, marked; post-mortem lividity marked; thorax opened. The pleural cavity was obliterated by pleuritic adhesions. Left lung examined; anterior and posterior adhesions were found; several cavities were found in apex; tubercular deposits throughout the lung more marked in the superior lobe. Right lung examined; general adhesions were found. Numerous cavities containing clots were found throughout the entire lung. The hemorrhage was due to the rupture of the bronchial artery. Tubercular deposits were found throughout the lung.

Heart examined: was found normal; post-mortem clot was found in right auricle. Abdomen opened, liver examined; was found hyperæmic, otherwise normal.

Spleen examined: was large and pultaceous. Left kidney examined; normal. Right kidney examined; normal.

## CASE 12.

J. W. P., native of South Carolina; age, 34; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., September 26, 1890; died October 22, 1890.

*History.*—Patient stated that he had been sick two years. He contracted a severe cold at Vera Cruz two years previous to his admission. Following it he said that he began to lose strength and cough a great deal, especially at night; expectorated a great deal. He also had night sweats. Bowels were regular and appetite was good up to two weeks previous to admission; during the two weeks previous to admission he had absolutely no appetite and lost strength rapidly. On physical examination the following condition was found: Right lung, dullness on percussion at apex and over middle lobe; cavernous respiration was heard at apex; vocal resonance not increased. Left lung, dullness on percussion at apex; cavernous respiration heard at apex; vocal resonance not increased. Patient sank steadily, dying, finally, October 22, 1890, at 8:30 o'clock a. m.

*Necropsy.*—Post-mortem lividity marked. Pleural cavity obliterated by old pleuritic adhesions. Left lung examined; tubercular deposits found throughout the lung. Numerous small cavities were found; the lung completely "honeycombed." Right lung examined; tubercular deposits found throughout the lung. Numerous small cavities were found; the lung completely "honeycombed." Heart examined; a fibrinous deposit and post-mortem clot were found in left auricle. Post-mortem clot was found in the left ventricle. No clot was found in the right auricle, but a post-mortem clot was found in the right ventricle. The walls of the heart were pale and flabby. Abdomen opened; liver examined; the liver was found adherent to diaphragm; very fatty and cirrhotic throughout.

Spleen examined; was small and shrunken. Left kidney examined; normal, capsule coming off easily.

## CASE 13.

R. J.; age 24 years; native of Virginia; was admitted to the marine division of St. Francis Xavier Infirmary at Charleston, S. C., on September 12, and died November 4, 1890.

*History*.—When admitted he gave a clear history of inherited tendency to tuberculosis; an examination gave multitudes of bacilli, both lungs undergoing disintegration. Emaciation extreme. Treatment orthodox. Death from exhaustion and exsanguination from hemorrhage.

*Necropsy*.—No rigor. Great emaciation. Thorax opened. Tissues bloodless. General adherence of pleuræ, with tubercular nodules. Lungs disintegrated with numerous collections of pus which showed immense numbers of bacilli. Glandular enlargements general, bronchial and mesenteric. Death from tubercle of lung.

## CASE 14.

J. S.; age 34; nativity, Finland; admitted to the marine ward, St. Mary's Infirmary, Galveston, Tex., May 19, 1890. Died July 1, 1890.

*History*.—Patient was in advanced stage of tuberculosis on admission, with the usual symptoms. He gradually failed and died of exhaustion.

*Necropsy*.—*Rigor mortis* poorly marked; body emaciated; pleuritic adhesions on both lungs; serous effusion in both pleuritic cavities; tubercular ulcerations in larynx and trachea. Tubercular infiltration and cavities in both lungs, the left being most affected. Heart normal. Aorta atheromatous. Kidneys fatty, with parenchymatous nephritis. Liver fatty. Tuberculous ulcers were found scattered throughout the large intestines, noticeably around the cæcum. Other organs appeared normal.

## CASE 15.

E. A.; native of Norway; age 25; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., August 30, 1890; died October 12, 1890.

*History*.—Patient said that he had always enjoyed good health up to a month previous to admission. He denied any specific history; was taken one month before admission with a feeling of great weakness, as well as cough, with considerable expectoration (especially at night). He had night sweats, bowels were regular, and appetite good. Patient stated that he had lost a great deal of weight within the last month previous to admission. On physical examination the following condition was found: Right lung anteriorly, harsh respiration and subcrepitant râles were heard at apex; sonorous and sibilant râles were heard over entire anterior surface; dullness was found on percussion at apex. Left lung anteriorly, cavernous respiration at apex; sonorous and sibilant râles were heard over entire lung; a flat percussion note was noticed at apex. Posteriorly, harsh respiration at apex of right lung; sonorous and sibilant râles were heard over rest of the lung, and an unusual vocal resonance. Cavernous respiration was heard at left apex, and vocal resonance was not increased. Patient sank steadily, dying finally on October 12, 1890, at 2 o'clock p. m.

*Necropsy*.—Post-mortem examination was made about twenty hours after death. *Rigor mortis* marked. Post-mortem lividity well marked. Pleural cavity obliterated by old pleuritic adhesions. Left lung examined; found adherent to the pleura. A cavity was found in the apex, and upper half of the lung consolidated. Numerous small cavities were found with calcareous deposits. Right lung examined; found adherent anteriorly and posteriorly; was adherent to the diaphragm. A cavity was found in the apex, and numerous small cavities in the



whole lung with calcareous deposits. A general infiltration of tubercular deposits. Heart examined; left auricle was found normal; left ventricle contained post-mortem clots; post-mortem clots were found in the right auricle and right ventricle; the walls were normal. Liver examined; was found slightly fatty. Spleen examined: was found normal. Left kidney examined; was enlarged and fatty, the capsule coming off easily. Right kidney examined; was found enlarged and fatty, the capsule coming off easily.

## CASE 16.

J. H.: age, 27 years; nativity, Spain; was admitted to the marine division of the St. Francis Xavier Infirmary at Charleston, S. C., on October 2, and died November 4, 1890.

*History*.—Patient had been a frequent inmate of the hospital during the past two years, passing through all the stages of slowly advancing lung disintegration. Family history of maternal phthisis. When last admitted physical examination gave most serious evidence of rapid progression. The right lung was cavernous at apex and base, with no function whatever. Left cavernous at apex, and generally infected. Bacillus tuberculosis found readily. Treatment as usual, stimulus and good food. Death from slow exhaustion. No hemorrhage at any time.

*Necropsy*.—No rigor. Great emaciation. Thorax alone examined. General adhesions and general disintegration of lung tissue.

## CASE 17.

J. P. H.; age, 36; nativity, Maine; admitted to the U. S. Marine Hospital, Mobile, Ala., June 11, 1890; died November 2, 1890.

*History*.—Patient was suffering with a cough when admitted, and was very much emaciated. Said that had lost relatives with consumption. He was examined and a diagnosis of tubercle of lungs made. Gradually got weaker until his death.

*Necropsy (eight hours after death)*.—External appearances: Body extremely emaciated; no post-mortem lividity. *Rigor mortis* slight. Feet much swollen and club-shaped fingers. Cranium: Scalp normal; calvarium removed  $\frac{3}{8}$  inch thick. Dura mater was normal. The pia mater contained a few tubercles at the base of the brain. The lateral ventricles contained small amount of fluid. The brain weighed 1,343 g., and was normal in structure and appearance. Thoracic cavity: The heart was small; weighed 237 g. The cavities of the heart were normal in size. A pale ante-mortem clot was found in right ventricle, which weighed 5 g. The valves were competent, but the mitral and tricuspid were slightly thickened. The left lung weighed 270 g.; it contained a large cavity, commencing at the apex and extending downward, being 5 inches long and 3 inches wide. The cavity was partially filled with purulent matter and was traversed by a few trabeculæ. The lower lobe was completely consolidated, studded with numerous yellow tubercles. Three small cavities, about the size of hickory nuts, were found in the lower lobe. The whole lung showed numerous spots of marked caseation. The right lung weighed 1,160 grams. The apex was consolidated and contained a cavity 3 inches long and 2 inches wide; also another small cavity. The pleura was thickened, studded with tubercles and firmly adherent to the chest walls. The glands in the posterior mediastinum were found enlarged, containing an excessive amount of pigment and consolidated with tubercles. Abdominal cavity: Liver weighed 1,450 grams and was normal in appearance. The stomach was normal. The small intestines contained tubercles in the mucous membrane, but no ulceration had occurred. The large intestines were normal. The

right kidney weighed 200 grams, the left kidney weighed 125 grams. The spleen was enlarged and softened; a small abscess was found in its substance; its weight was 243 grams. Pancreas weighed 98 grams; a few tubercles were found in its structure.

## CASE 18.

J. H.; age, 20 years; nativity, Texas; admitted to the U. S. Marine Hospital, New Orleans, La., May 1; died September 19, 1890.

*History.*—The patient was admitted with a well-marked history of phthisis, considerable cough and expectoration of a muco-purulent material, pain in the chest, some shortness of breath, considerable loss in weight, no night sweats, slight diarrhoea, there being two to four stools daily; some soreness in the abdomen, and occasional rise in the temperature. On physical examination the signs of inflammation of the lungs could be detected, such as moist râles and areas of consolidation. The patient gradually sunk.

*Necropsy (twelve hours after death).*—Body that of fairly developed and poorly nourished colored man. *Rigor mortis* well marked. The heart weighed 390 grams, and the pericardial sac contained a serous fluid. The left lung was adherent at the base and weighed 900 grams. The right lung was a mass of fibroid tubercles, and was adherent to the chest wall. The peritoneum was covered with tubercles. Liver congested and covered with miliary tubercles. It weighed 1,930 grams. Both kidneys were covered with miliary tubercles. The right weighed 200 grams, while the left weighed 220 grams. The spleen weighed 400 grams, and was covered with tubercles.

## CASE 19.

J. G.; aged 29 years; nativity, Louisiana; was admitted to the U. S. Marine Hospital, New Orleans, La., February 1. Died October 19, 1890.

*History.*—Patient had been under treatment at various times during past three years for pulmonary phthisis. At his last admission auscultation and percussion revealed an advanced case, with cavities, while dyspnoea, emaciation, night sweats, cough, purulent expectoration, and loss of appetite completed the picture. He expired immediately after a very profuse hemorrhage, the first.

*Necropsy (fourteen hours after death).*—Body that of a muscular mulatto, much emaciated; *rigor mortis* well marked. Height, 175 cm. Heart weight, 275 g.; walls thinned, valves competent. Lungs: left, weight, 1,000 g.; congested, filled with cavities, one large one containing blood clot. Right lung: weight, 750 g.; contains one cavity, empty, of 75 cm<sup>3</sup> capacity, and many small tubercular masses. Other organs normal.

## CASE 20.

A. P.; native of Poland; age 35 years; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., June 10, 1890; died August 10, 1890.

*History.*—On admission he gave the following history: During the past year he has lost a great deal of flesh, and has been subject to night sweats for the three months previous to his admission. Two months ago patient spit up blood for the first time, and has had absolutely no appetite since. Eight days ago he had a chill, followed by fever. Fingers were characteristic of tubercle. His cough was severe and frequent, and he expectorated large quantities of yellow mucus. Tubular breathing was noticed at apex of right lung, almost amphoric. Slight pleuritic friction sound was heard at lower portion of right chest and a few crackling râles on same side, but none on left. His temperature continued to remain high in spite of antipyretics and treatment. Patient continued in about same condition, neither much better nor worse, until June 21, 1890, when he desisted. On July 26, 1890, the patient returned and stated that he did not intend



to desert. He understood from the nurse that he was to be discharged from the hospital, and he left without further ceremony. The facts of the matter are, that he was to be discharged and returned to Germany on the following day and the nurse was instructed to tell him so, but failed to make him understand. On August 8, 1890, patient was finally readmitted to hospital in a dying condition, and he died at 5:30 o'clock a. m. August 10, 1890.

*Necropsy (about thirty hours after death).—Rigor mortis* was marked and subject was found greatly emaciated. Thorax opened. Right lung was found adherent to all parietes by strong, fibrinous bands, and could not be removed. The surface was nodular, and the substance on section was found to be the seat of tubercular infiltration. Left lung was adherent, the pleural cavity obliterated, the upper portion consolidated and all its cavities entirely obliterated. Liver was thoroughly adherent, cirrhotic, small, fatty (probably tubercular), and cut hard and cheesy. Spleen was about normal in size, but flabby, friable, and slightly pultaceous. Retro-peritoneal glands were found enlarged. Intestines were found normal. Bladder was found normal. Heart was small, in systole, all the clots were post-mortem and the auricles, ventricles, and valves were all found normal. Left kidney was seat of parenchymatous nephritis, capsule was adherent, and on section tubercles were noticed. Right kidney was pale (capsule slightly adherent at one point) and the seat of cloudy swelling. A few small tubercles were observed on section. Brain not examined.

#### CASE 21.

L. C. (colored); age 23; native of Tennessee; admitted to U. S. Marine Hospital, Memphis, Tenn., December 29, 1890, died December 31, 1890.

*History.*—Patient had received office and hospital treatment at various times for the usual symptoms of advanced pulmonary tuberculosis. Two days after his admission he had a profuse hemorrhage from the lungs and died within five minutes thereafter.

*Necropsy.*—*Rigor mortis* slight; body remarkably well nourished. The upper lobe of the right lung was merely a multilocular abscess with dense, fibrous walls. The lower part of left upper lobe contained several large cavities. The remainder of the lung tissue, including the left apex, was in the first stage of pneumonia, but was free from tubercular deposit. The bronchial glands were very much enlarged.

#### CASE 22.

D. S.; aged 36 years; born in New York; admitted to the U. S. Marine Hospital, Chicago, Ill., September 11, 1890; died September 19, 1890.

*History.*—When admitted patient stated that he had been suffering with a slight cough for several months, but he complained most severely of extreme debility, loss of appetite, and rapid emaciation, and slight pain in chest. Treatment consisted of usual supporting and stimulating measures. Complete anorexia and progressive emaciation continued until September 19, when he died.

*Necropsy.*—Extreme emaciation; *rigor mortis* well marked. Heart: pericardial sac normal, 5 c. c. serum; no gross pathological changes in heart, weight 200 grams. Lungs: right pleural cavity obliterated by agglutination of parietal and visceral layers of pleura; left pleura slightly adherent over upper lobe. Upper lobe of right lung riddled with small cavities filled with various products of tubercular disintegration of lung tissue, weight 470 grams; areas of consolidation and few small cavities found in apex of left lung, weight 520 grams. Other organs not examined.

## CASE 23.

P. J. C.; age, 45; born in New York; admitted to the U. S. Marine Hospital at Chicago, Ill., June 17; died August 31, 1890.

*History*.—Patient upon admission presented usual appearances of well-advanced tubercle of lungs, as emaciation, hectic, shallow breathing, etc. Physical examination revealed extensive areas of consolidation of upper lobe of each lung, and several small cavities in the apices. *Ægophony*, tubular and cog-wheel respiration, with numerous large and small moist râles heard over each lung. Constant tendency to destruction of lung tissue and speedy decease of patient. He continued to sink, and finally died on August 31, 1890.

*Necropsy (nine hours after death)*.—Body greatly emaciated. *Rigor mortis* slight. Trace of post-mortem lividity. Heart: pericardium contained 25 c. c. serum; valves all competent and general condition normal; heart in diastole weight, 320 grams. Larynx and trachea presented normal gross appearances. Lungs: pleuræ thickened and adherent; pleural cavities nearly obliterated; lung tissue degenerated and friable, difficult to remove from thorax. Each of the upper lobes were studded with areas of tubercular deposit. Several small cavities, 1 mm. in diameter, filled with muco pus and degenerated lung tissue, scattered throughout the apices. Right lung weighed 950 grams; the left, 890 grams. Other organs not examined.

## CASE 24.

W. C.; age 25; nativity, United States; was admitted to the U. S. Marine Hospital, Chelsea, Mass., December 9, 1890, and died December 24.

*History*.—In the apex of his right lung a large cavity could be mapped out. The left lung was consolidated in its upper lobe.

*Necropsy (eight hours after death)*.—Body extremely emaciated; œdema of lower limbs. Right lung, upper lobe seat of cavity 4 by 5 cm; rest of lung consolidated. Upper lobe of left lung contained a cavity 3 by 4 cm. Rest of lung consolidated. Pleural adhesion general abdominal cavity contained about 1,000 c. c. of serum; other organs normal.

## CASE 25.

J. O.; age, 48; nativity, Norway; was admitted to the U. S. Marine Hospital Chelsea, Mass., August 22, 1890, and died on December 10, 1890,

*History*.—The disease was far advanced on admission; several small cavities could be detected in right lung. A tubercular abscess of the wrist joint was developed about two months before his death.

*Necropsy (seven and a half hours after death)*.—Body much emaciated. Abscess of wrist joint. Right lung: Upper and middle lobe consolidated and filled with small cavities. Left lung contained a few nodules. Pericardium normal. Heart small, weight 270 grams; valves competent. Kidneys acutely congested; right weighed 245 grams; left, 224. Brain: pia mater over convexity showed marked signs of old inflammation. Membranes were thickened and opaque; blood vessels very much enlarged.

## CASE 26.

L. M.; age, 26; nativity, Norway; was admitted to the U. S. Marine Hospital, Chelsea, Mass., July 31, 1889, and died on September 21, 1890.

*History*.—His right lung on auscultation disclosed the presence of several small cavities, and there was slight consolidation at apex of left lung. A systolic murmur could be heard over aortic valves, but the rythm of the heart was good. The cavities in his right lung gradually grew larger until they coalesced, forming one large cavity.



*Necropsy*.—Right lung: Upper lobe contained an immense cavity, 8 by 7 cm.; lower lobe consolidated. Left lung: Upper lobe consolidated and contained several small cavities. Pleural adhesion general. Pericardium normal. Heart: Aortic valves fringed with vegetation and marked thickening of cusps, competent; mitral valves also thickened, but competent. Slight dilatation of both auricle and ventricle on right side. Other organs normal.

## CASE 27.

*Tubercular laryngitis.*

A. F.; age, 28; nativity, Finland; admitted to the U. S. Marine Hospital, Chelsea, Mass., April 11, 1890, and died September 19, 1890.

*History*.—Physical examination showed a large cavity in the apex of each lung; rest of lungs consolidated. About the time of his admission he was attacked with tubercular laryngitis, causing almost complete loss of voice and great pain on swallowing. A tubercular deposit in his intestines caused great pain and obstinate diarrhoea.

*Necropsy (thirteen hours after death)*.—Apex of both lungs seat of a large abscess cavity. Rest of both lungs partly consolidated, with several small cavities scattered here and there. The large cavities in apices measured 6 cm. by 7 cm. Heart and pericardium normal. Pleura closely adherent. Intestines seat of numerous tubercular ulcers; mesenteric glands enlarged. Larynx, mucous membrane was ulcerated, extending down the trachea to its bifurcation. The destructive process had eroded the mucous membrane and partly eaten away the cartilages.

## CASE 28.

R. M.; age, 24; nativity, Newfoundland; was admitted to the U. S. Marine Hospital, Chelsea, Mass., July 17, and died August 25, 1890.

*History*.—Upon admission he was emaciated and had diarrhoea, with frequent vomiting. Examination showed the presence of several small cavities in each lung; there was also a systolic murmur over the base of his heart, but no irregularity in its rhythm. During the last month of his life tubercular enteritis was present.

*Necropsy*.—Body emaciated; *rigor mortis* slight; both layers of pleuræ over each lung were intimately adherent; right lung contained much fibroid tissue and numerous small cavities; left lung riddled with small cavities, marked increase of fibroid tissue. The mesentery was studded with small tubercular nodules, and was generally adherent to abdominal peritoneum. Small intestines showed marked inflammation of mucous, muscular, and peritoneal coats, and in spots where the inflammation had spread to the peritoneum the parietal and visceral layers of this membrane were adherent; other organs normal.

## CASE 29.

P. W.; age, 40; a native of Ireland; was admitted to the U. S. Marine Hospital, St. Louis, Mo., December 17, 1889.

*History*.—Cough and dyspnoea; profuse expectoration; sputum tinged with blood; lost flesh and strength; occasionally hæmoptysis and night sweats.

*Necropsy*.—Body emaciated; no *rigor mortis*; legs œdematous; 500 cubic centimeters of fluid in left pleural cavity; left apex firmly attached to wall of chest; large cavity in apex of left lung full of pus; lung studded throughout with tubercles; right pleural cavity contained 250 cubic centimeters of fluid. There were extensive adhesions, but they were easily torn; no cavity in right lung, but very many tubercles; kidneys large and swollen; capsules easily removed; cortical

substance had undergone cloudy swelling; was pus in pelvis of left kidney; pancreas marked by tubercules.

## CASE 30.

I. A.; age, 36 years; nativity, South Carolina; admitted to the marine division of the St. Francis Xavier Infirmary at Charleston, S. C., on November 7, 1890, and died December 3, 1890.

*History*.—Tubercle of lung, with rapid advance and frequent hæmorrhage. Emaciation extreme. Both lungs cavernous. No normal breathing sounds, owing to the coarse harsh râles of disintegration. Treatment to meet symptoms. Death after severe hæmorrhage.

*Necropsy*.—Little rigor; great emaciation. Thorax opened. Pleura adherent. Lungs infiltrated with broken-down tubercular tissue and cavernous at both apices. Bronchial and mesenteric lymph nodes enlarged. No ulcers of intestine. Bacillus found before and after death.

## CASE 31.

L. C. (colored); age, 47; a native of Kentucky; was admitted to hospital St. Louis, Mo., July 22, 1890.

*History*.—Cough of a year's duration. Pain in chest on the left side. Pain constant, but worse sometimes than others. Copious muco-purulent sputa. Loss of both flesh and strength. Sputa occasionally bloody. Dullness over right apex and left lower lobe of lungs. Bronchophony over left lower lobe with coarse râles. Later râles disappeared and a tympanitic note appeared on percussion. Feet, legs, and hands œdematous. Amphoric resonance over right apex. His failure gradual and constant. He died October 30, 1890.

*Autopsy*.—Left lung entirely gone, not a piece left. Large cavity in right apex. The other thoracic and abdominal viscera normal.

## CASE 32.

G. H.; Native of England; age, 34; from the S. S. *City of Washington*; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., January 20, 1890.

*History*.—Patient stated that he began to cough two months previous to admission. He said that he took some medicine which benefited him. Two weeks previous to admission he contracted a cold; after this his cough increased, especially at night, preventing sleep; chest very sore; appetite was poor, and he suffered from night sweats and complained of chilliness almost constantly. Bowels were regular. Physical signs: Percussion gave slight increased pitch over both apices; more pronounced on left side. Slightly flat note was heard over supra scapular fossæ. Auscultation revealed a broncho-vesicular murmur over the upper portion of both lungs. Scattering moist râles were heard all over chest; marked prolonged expiration, and vocal resonance was increased over both apices; but more over the right.

*February 14, 1890*.—Patient was discharged improved, but returned July 31, 1890. His symptoms on readmission were about the same as mentioned above. He stated that he had lost weight and strength rapidly for six weeks previous to his readmission. He gradually grew weaker, finally dying November 15, 1890, at 7.10 o'clock a. m.

*Necropsy*.—Post-mortem examination was made twenty-eight hours after death. *Rigor mortis*, marked. Post-mortem lividity marked. The pleural cavity almost entirely obliterated by old pleuritic adhesions. Left lung examined, was found collapsed about one-half; adhesions at apex and posteriorly. The whole lung was infiltrated with tubercular deposits; numerous cavities were found containing



mucopurulent fluid. Right lung examined, was found adherent to the parietes, and could not be removed; one section in situ; it was found infiltrated with large tubercular masses which had undergone cheesy degeneration. Abscess cavities were found at apex. Heart examined, was pale and flabby, in diastole, valves normal. Liver examined, was slightly congested and in a condition of fatty infiltration. Spleen examined, normal. Left kidney examined, capsule slightly adherent, the kidney slightly congested, otherwise normal. Right kidney examined, was found in the same condition as the left. Mesenteric glands were enlarged; serum was found in peritoneal cavity; intestines were normal.

## CASE 33.

T. B.; age, 25; native of Ireland; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., May 28, 1890; died December 15, 1890.

*History.*—The patient stated that six months previous to admission he had some pain in his chest, which lasted about one week; at the same time he was drinking heavily. The pain in chest was followed by a cough. He also stated that he had a chill every day and pain in body and limbs, and lost flesh very rapidly. On physical examination the following condition was found: Auscultation revealed pleuritic friction sound over upper portion of left lung. Patient was discharged June 10, 1890; improved, but was readmitted next day for tubercle of lung. On readmission the following condition was found: On percussion the lungs were fairly resonant on both sides. Right lung, broncho vesicular breathing at apex, except posteriorly, was distinctly bronchial. Pitch normal; intensity decreased. Scattering subcripetant râles were heard over infra-clavicular region; note bronchial (shading to tubular) on free expiration. Left lung, signs similar to the right lung, except at base on mamillary line; breath note feeble, but high pitched and distinctly bronchial. Râles few and indistinctly heard. Patient grew weaker gradually, losing flesh rapidly. Had hemorrhage from lungs October 2 and on the following dates: November 3, 12, 14, 16, 17, 21, 24, December 3, 9, 13. Fluid extract ergot was given for the hemorrhage, also cracked ice and Monsel's solution were used locally. By these means the hemorrhages were controlled. Patient sank steadily, finally dying December 15, 1890, at 10 o'clock a. m.

*Necropsy.*—Post-mortem examination was made twenty-six hours after death. *Rigor mortis* marked. Post-mortem lividity marked. Pleural cavity partially obliterated by old plueritic adhesions. Left lung examined; adhesions at apex, laterally and posteriorly, also adherent to pericardium. A large cavity was found in apex, the lobes were agglutinated. Cheesy masses were found throughout the lung. Right lung examined; adhesions posteriorly and anteriorly, small cavities were found; the entire lung tuberculous. Heart examined; *ante-mortem* clots found in left auricle and left ventricle; otherwise normal. Liver examined; was enlarged, hard, and fatty. Spleen examined; normal. Left kidney, slightly fatty; right kidney examined, was found in the same condition as the left.

## CASE 34.

M. R.; age, 34; native of Massachusetts; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., on November 11, 1890; died November 29, 1890.

*History.*—Patient had always enjoyed good health up to within about three months of the time of his admission to hospital. He was first taken with a severe cough and expectorated a great deal of dark-yellow sputum. From the beginning of his illness, patient lost strength and flesh rapidly. Appetite was generally good, but he was unable to eat much for three weeks before admission to hospital.

on account of a sore throat. When able to eat a full meal patient complained of a great feeling of fullness in the stomach. Physical signs: Left lung revealed dullness on percussion throughout anterior and posterior surfaces. Moist bubbling râles and tubular breathing were heard posteriorly. Anteriorly, a distinct metallic tinkle was heard at apex. Moist râles were general through the lung. Vocal resonance was very marked in anterior portion of lung. Right lung gave dullness on percussion, anteriorly and posteriorly general tubular breathing and moist râles. Patient was evidently in an advanced state of tuberculosis pulmonalis, and sank steadily, until he finally died at 8.30 a. m. on November 29, 1890.

*Necropsy.*—*Rigor mortis* was quite well marked. Post-mortem lividity was marked. Body was greatly emaciated. Right lung was found thoroughly adherent, especially at apex and posteriorly. It was also quite firmly adherent to diaphragm. On section, the lung substance was found filled with tuberculous deposits, and was the seat of several large cavities. The tuberculous deposits were especially marked at apex. It was also soft and hyperæmic. Left lung was generally adherent and was firmly attached to the pericardium. It was contracted and very hard, and completely filled with tuberculous deposits, thicker at the apex than elsewhere. Heart was in systole and filled with post-mortem clots on both sides. It was greatly softened, and the seat of myocarditis. The mitral valves were insufficient; the tricuspid valves also. A large ante-mortem clot was found in the aorta, which terminated in a post-mortem clot (which was firmly attached to it) at the aortic semilunar valves. Liver was found firmly adherent to diaphragm, and slightly adherent over its entire surface. It was very hyperæmic (a wet liver), and the seat of several isolated tuberculous deposits and of fatty degeneration (generally). Spleen was large, soft, friable, and dark in color; capsule was thickened, otherwise normal. Stomach was slightly hyperæmic, otherwise normal. Small intestines were hyperæmic, otherwise normal. Mesenteric glands; hyperæmic, thickened, and filled with tuberculous deposits. Right kidney was hyperæmic, otherwise normal. Left kidney was hyperæmic, capsule adherent; otherwise normal.

#### CASE 35.

A. C.; aged, 49 years; a native of Florida; was admitted to the U. S. Marine Hospital, New Orleans, La., April 29, 1890, and died July 3, 1890.

*History.*—The patient had been treated at the hospital a short time previously for tubercle of the lung, and at the time of admission exhibited the signs of this disease, involving the upper portions of both lungs, accompanied by hectic fever and diarrhea. During the course of his treatment he suffered a great deal from abdominal symptoms, and complained frequently of griping in the region of the stomach. He suffered also from sore throat and had a discharge from the right ear. All remedies failed to check the progress of the disease.

*Necropsy (eleven hours after death).*—The body was that of an adult male negro, extremely emaciated. *Rigor mortis* was well marked. The left lung was adherent to the thoracic wall at the apex. The upper lobe of the lung was occupied by tuberculous cavities and broken-down tissue. The lower lobe was congested and contained tubercles and a few small cavities. The upper lobe of this lung was fissured, being almost divided into two and resembling the two upper lobes of the right lung. The right lung was adherent to the thoracic wall about the upper lobe, and its several lobes were agglutinated by plastic exudation. The upper lobe was entirely broken up by tuberculous decay. The middle lobe was filled with tubercles and small cavities. The lower lobe was congested and tuberculous. The pericardium surrounding the heart contained patches of plastic exudation. The heart was normal, but pale in its tissue. The liver



weighed 2,100 g. Its tissue was fatty. The spleen was rather large and pale. The left kidney weighed 180 g. and the right 155 g. The tissue of both was very pale and the pyramids were poorly defined. Large tuberculous patches existed in the small intestine, and the mesenteric glands were much enlarged.

## CASE 36.

A. L.; age, 46 years; nativity, Louisiana; was admitted to the U. S. Marine Hospital, New Orleans, La., September 2; died October 20, 1890.

*History*.—A severe and neglected cold of some months duration, though with little or no cough on admission, with rapid emaciation and failure of strength, brought patient to the hospital. On admission the symptoms were apparently more those of liver disorder. Auscultation revealed no tangible evidence of lung complication for some time, until it suddenly became prominent, and rapidly progressed until death ensued from exhaustion.

*Necropsy (twelve hours after death)*.—Body that of a small, middle-aged man, much emaciated. *Rigor mortis* marked. Height, 163 centimeters. Heart weight, 255 g.; valves competent; ventricle walls thinned. Lungs: left, weight, 1,050 g.; pleural cavity dry; lung filled with miliary tubercle; apex congested. Right, weight, 1,450 g.; pleural cavity obliterated; two well-marked cavities in apex, whole lung broken down, base congested. Mesentery full of tuberculous deposits. Liver large, soft, easily broken down; color, light; weight, 2,250 g. Spleen, weight, 180 g., slate-color, congested.

## CASE 37.

J. G.; age, 32 years; nativity, New York; admitted to U. S. Marine Hospital, Detroit, Mich., November 25, 1889; died July 31, 1890.

*History*.—Said he had had lung fever a year or two before, and for the past year more or less cough and hoarseness and rheumatism. On admission one knee was slightly swollen, and there was considerable pain along the course of the sciatic nerve. The pain in limbs and back was quite marked for several weeks, followed by lateral curvature of spine, due apparently to paralysis of muscles on one side of back, but the latter gradually subsided. During this period patient had a slight cough and complained also of night sweats, and had occasional attacks of chills and fever. About the beginning of February a swelling appeared on the forearm, extensor side, simulating ganglion, but a small incision revealed its character, tubercular abscess, the first marked sign of the disease, aside from the hoarseness and cough previously mentioned. After this there were frequent attacks of hemorrhage from the lungs, the expectoration also became more profuse, and patient rapidly declined; the radial arteries showed marked atheromatous (calcareous) degeneration.

*Necropsy (fifteen hours after death)*.—In anterior mediastinum just above diaphragm and adherent to posterior surface of sternum was a mass, size of walnut, of fibroid induration which contained a few scales of calcareous degeneration. Pleuræ irregularly thickened, seat of chronic inflammation, with firm adhesions. Right lung adherent throughout, atrophy and degeneration of the vesicular structures with contraction and induration of the organ. There are deposits of tubercle in the inflamed lung and numerous pus cavities with firm walls. Weight 870 grams, left lung contracted, of grayish color mottled with black pigment, slightly crepitates and contains great quantities of tubercle, weight 480 grams. Heart muscle pale and flabby. Weight 250 grams. Liver normal in appearance. Weight 1,430 grams. Spleen normal. Weight 140 grams. Kidneys normal. Right kidney, weight 140 grams; left kidney, 140 grams.

## CASE 38.

P. B. H.; age, 39; born in Ireland; admitted to the U. S. Marine Hospital at Chicago, Ill., September 20; died November 12, 1890.

*Necropsy*.—Height, 6 feet; circumference of shoulders, 33; post-mortem lividity is marked; no *rigor mortis*. The body is extremely emaciated. The heart weighs 280 g. after opening. The valves are competent. The pericardial sac is normal, containing about 5 cubic centimeters of fluid. In the left pleural sac here is about 100 cubic centimeters of fluid. The left lung weighs 845 g., is infiltrated with tubercular nodules all through the upper lobe, contains caseous masses and several small cavities. The right pleural sac is obliterated by firm adhesions at the apex. The right lung weighs 850 g., and the apex is the seat of extensive tubercular change. The liver, spleen, and kidneys all appear normal. The other organs were not examined.

## CASE 39.

W. G.; age, 40 years; nativity, Michigan; admitted to the U. S. Marine Hospital, San Francisco, Cal., May 6; died July 30, 1890.

*History*.—This patient was under treatment in the spring of 1889 for the same disease (tubercle). The symptoms were chiefly dependent on the condition of the larynx. There was aphonia, cough, and late in the disease the profuse expectoration usually attending pulmonary tubercle. The patient also had difficulty in swallowing liquids on account of the ulcerated condition of larynx.

*Necropsy (sixteen hours after death)*.—*Rigor mortis* slight. Body somewhat emaciated. Pericardial sac normal. Heart normal; weight 325 grams. Tubercular infiltration and ulceration of larynx. Both lungs filled with tubercle and contained large cavities. Pleuritic adhesions on both sides. Weight of left lung 880 grams; right, 950 grams. Liver, normal in appearance; weight, 1,900 grams. Left kidney congested, and contained pus in pelvis; weight, 150 grams; right, 150 grams; spleen, 140 grams. Brain weighed 1,320 grams. Dura mater opaque and slightly adherent.

## CASE 40.

M. B.; age, 53 years; nativity, Rhode Island; admitted to the U. S. Marine Hospital, San Francisco, Cal., May 20; died July 17, 1890.

*History*.—When admitted was suffering from cough, dyspnœa, marked œdema of lower extremities and ascites. These symptoms continued, the patient gradually sinking until death occurred.

*Necropsy (twelve hours after death)*.—*Rigor mortis* well marked, lower limbs œdematous. Pericardial sac adherent. Heart normal, weight 320 grams. Both lungs tuberculous and contained large cavities in apices. Weight, left, 910 grams; right, 880 grams. Pleuritic adhesions on both sides. Abdominal cavity contained about two gallons of fluid. Weight of liver 1,600 grams. Gall bladder distended with bile. Both kidneys enlarged, iodine test shows amyloid degeneration capsule slightly adherent, weight, left, 280 grams; right, 300 grams; spleen, weight, 180 grams.

## CASE 41.

H. K.; age, 20 years; nativity, Honolulu; was admitted to the the U. S. Marine Hospital, San Francisco, Cal., November 25, and died December 25, 1890.

*History*.—At the time of admission this patient was in a very feeble condition. He had a severe cough which had troubled him for some time, and had also had several hemorrhages from the lungs. On examining the lungs tuberculosis was found to exist. Patient gradually grew worse and died December 25, 1890.

*Necropsy (twenty-four hours after death)*.—Both lungs contained tubercles and



were bound to pleura by old adhesion, a small cavity was found in right apex. Heart normal, liver slightly enlarged, cortical portion of both kidneys thickened and capsules adherent, spleen normal.

## CASE 42.

A. O. O.; age, 22 years; nativity, Sweden; admitted to the U. S. Marine Hospital, San Francisco, Cal., July 10, died October 13, 1890. Diagnosis, tubercle of lungs.

*Necropsy (ten hours after death).*—The lungs were filled with tubercle and both apices contained large cavities. Pleuritic adhesions on the left side, weight of left lung, 1,300 grams; weight of right lung, 1,050 grams. Heart normal. No other organs examined.

## CASE 43.

C. J.; age, 23 years; nativity, Sweden; was admitted to the U. S. Marine Hospital, New Orleans, La., July 1, died November 1, 1890.

*History.*—The patient stated that he had been sick since the middle of the preceding January, with coughing and shortness of breath, night sweats, and at times expectoration of blood. He complained of pains in the chest. His appearance was cachectic and he presented the physical signs of pulmonary tuberculosis. The disease pursued its usual melancholy course to terminate in death.

*Necropsy.*—Body of a young white man, poorly nourished. *Rigor mortis* well marked. The heart weighed 220 grams, and was normal. The left lung weighed 550 grams. Its pleural cavity was interrupted by many adhesions and contained no fluid. A cavity in the apex of the lung contained 50 c. c. of pus. There were tubercles throughout its base. The right lung weighed 580 grams. Its pleural cavity was obliterated by firm adhesions. This lung contained few tubercles and no cavities. The stomach was pale and its villi were small and not well marked. The liver, light in color but otherwise normal, weighed 1,175 grams. The left kidney weighed 220 grams and the right 190 grams. Both were normal. The spleen was very hard and granular, and weighed 200 grams.

## CASE 44.

A. P.; age, 28 years; nativity, Virginia; was admitted to the U. S. Marine Hospital, New Orleans, La., October 13; died December 9, 1890.

*History.*—He had been treated at the hospital August 7 to 11, 1890, for tubercle of the lung, and at the time of his last admission presented the signs of the disease very far advanced, together with fever, night sweats, and diarrhea. He failed progressively and died of exhaustion.

*Necropsy (nineteen hours after death).*—Body of an adult male negro, poorly nourished. *Rigor mortis* well marked. Pupils dilated. The heart weighed 355 grams, and was normal. The left lung was adherent to the chest walls at the apex and was filled with tubercular deposits. The right lung was adherent on all sides and was filled with tubercular deposits and small cavities from apex to base.

The stomach weighed 162 grams, and had a capacity of 1,950 c. c. The liver was soft and congested, its color dark red and its weight 1,865 grams. The gall bladder was filled with bile. The pancreas weighed 95 grams. The left kidney weighed 170 grams, and the right 165 grams. The bladder and genitals were normal. The spleen weighed 230 grams, was of a slate color and congested.

## CASE 45.

B. K.; age, 25 years; nativity, Michigan; admitted to the U. S. Marine Hospital, Detroit, Mich., October 28, 1890; died June 11, 1891.

*History.*—He was admitted October 28, 1890, for sciatica, which proved to be severe and rebellious to treatment. New permit issued April 9, 1891, for tuberculosis, which gradually supervened or probably existed when first admitted. Died from exhaustion June 11, 1891.

*Necropsy (six hours after death).*—The right lung was almost completely collapsed, due to pressure on the bronchi by a large mass of enlarged bronchial glands. The lung was also enormously studded with miliary tubercles. The left lung was studded throughout with miliary tubercles. The lower lobe was in the stage of red hepatization. Other organs normal.

#### CASE 46.

C. W.; age 49; nativity, Sweden; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., June 24, 1890; died March 19, 1891.

*History.*—He said that he was sick seven weeks with malaria about four years previous to admission. Since that time had been troubled with a cough and frequent attacks of malaria. He stated that he expectorated a great deal. Two weeks previous to admission had another attack of malaria. He lost flesh rapidly, cough growing worse, and some pain in chest, also had night sweats. On physical examination the following condition was found: Right lung, dullness on percussion at apex and over upper lobe; bronchophony crepitant, and subcrepitant râles; friction sound heard over upper lobe anteriorly. The same condition was found posteriorly. Ægophony over the scapular region. Left lung, about the same condition was found. Patient improved and was discharged at his own request from hospital October 21, 1890.

Patient was readmitted October 25, 1890. He stated on readmission that he had fever and his cough was growing worse, expectorating a large quantity of sputum, also complained of great weakness and stiffness of joints. Physical examination revealed the following condition: Right lung, flatness over apex, on percussion, dullness over rest of lung. Cavernous respiration and crepitant râles at apex, tubular breathing over rest of the lung. About the same condition was found posteriorly. Vocal resonance marked at apex posteriorly. Left lung was found in same condition.

*Necropsy (fourteen hours after death).*—*Rigor mortis* well marked. Post-mortem lividity well marked. Body greatly emaciated. Left lung examined; adherent posteriorly; a large cavity at apex; tubercular material disseminated throughout rest of the lung. Right lung examined; adherent posteriorly; a large cavity at apex; tubercular material disseminated throughout rest the lung. Heart examined; the pericordial sac contained about 50 c. c. of fluid; ante-mortem clot found in right auricle and ventricle; the heart otherwise normal. Liver examined; it was found very much enlarged, and fatty. Spleen examined: Normal, to all appearances. Left kidney normal. Right kidney normal. Brain not examined.

#### CASE 47.

M. B.; age 21; native of Tennessee; admitted to U. S. Marine Hospital, Memphis, Tenn., December 22, 1890; died February 14, 1891.

*History.*—Two months before admission was seized with pain in right side of chest; six weeks later began to expectorate blood. Has had a troublesome cough with muco-purulent sputum since the beginning of his illness. His temperature when admitted was 38° C. The upper lobe of the right lung was consolidated (bronchial breathing and dullness).

Physical signs over left lung were negative. There was a systolic murmur at base of heart. An abscess formed on the chest wall not long before death and was found to communicate with a carious rib.



*Necropsy*.—Body moderately emaciated; face œdematous; glands at base of neck enlarged. The right pleural cavity was obliterated. The right lung was atrophied and contained no normal tissue. It consisted of dense fibroid tissue containing numerous cavities. It could not be removed entire. The left lung was moderately adherent; weight, 860 gms. It contained numerous miliary tubercles: the lower lobe was congested. The heart weighed 370 gms.; the right cavities were dilated, and the tricuspid valve insufficient. The pericardial sac contained turbid serum, and was roughened by recent inflammatory exudate. The bronchial and mediastinal glands were greatly enlarged and many of them were cheesy. The transverse aorta was surrounded and its caliber encroached upon by a mass of enlarged glands. The systolic murmur at the base of the heart was thus accounted for. The seventh rib on the right side was carious. The liver weighed 1,760 gms., and contained numerous tubercular masses of small size. The spleen weighed 480 gms., and contained a few scattered tubercles. The right kidney weighed 160 gms., and the left 180 gms. Each of these organs contained a few tubercles. Pancreas: Weight 60 gms.; normal. The mesenteric glands were enlarged. The peritoneum was normal.

## CASE 48.

G. O.; seaman; age, 49 years; nativity, New York; was admitted to the marine ward of St. Vincent's Hospital, Norfolk, Va., December 8, 1890, and died January 10, 1891.

*History*.—He had been sick for many months, was weak, emaciated, and had a distressing cough. He had night sweats and profuse expectoration. A physical examination revealed a flat chest, marked depression under the clavicles, with signs of cavities in both lungs. He took to his bed shortly after admission, and failed daily till his death.

*Necropsy (twenty hours after death)*.—Body very much emaciated, with well-marked *rigor mortis*. Height, 5 feet 11 inches; circumference at shoulders 38½ inches; pupils dilated. The pleura was on both sides adherent to chest wall by many adhesions; contained very little fluid. The left lung was badly broken down; in its apex a cavity containing 50 c. c. of thick heavy pus, many cheesy masses were scattered through the other portions. The right lung was found partly hepatized and miliary tubercles were scattered throughout. The heart weighed 310 gms., was dilated; its ventricular walls were thick and soft; its valves seemed perfect; the sac contained about 25 c. c. of fluid. Many tubercular deposits were found throughout the mesentery. The peritoneum was very dry and the intestines empty. The liver was large and heavy, weighing 3,025 gms. The other abdominal organs were normal.

## CASE 49.

J. G.; age, 37; born in Ohio; admitted to the U. S. Marine Hospital at Chicago, Ill., January 7, 1891; died February 25, 1891.

*History*.—Greatly emaciated, suffering with frequent and severe paroxysms of coughing and the other usual symptoms attendant on advanced tubercle of lungs. Physical diagnosis demonstrated the complete involvement of the left lung and the apex of the right. Symptoms indicated the rapid extension of diseased process and the degeneration of the left lung. Treatment consisted of antiseptic, corroborant, and stimulant measures, and nutritious diet. Death finally ensued from absorption of diseased products and asthma.

*Necropsy (thirty hours post mortem)*.—*Rigor mortis* well marked: cadaveric rigidity present; body greatly emaciated; no subcutaneous fat. Heart: Pericardium contained about 50 c. c. serum. Gross appearances normal, small in sight, weight

200 gms. Valves all competent. Lungs: Right lung attached by several bands of organized fibrin to parietes of chest posteriorly and inferiorly to diaphragm. In the apex was found cavity of 50 c. c. capacity filled with pus and other products of retrograde metamorphoses. Apex further riddled with smaller cavities filled with same products. Weight of lung, 935 gms. Left lung: Pleural cavity occluded by agglutination of parietal and visceral layers. Upper lobe so adherent that it was impossible to remove it intact. Lung appeared like a shell ramified with numerous cavities all filled with necrotic tissues. Weight, 950 gms. Other organs not examined.

## CASE 50.

J. P.; age, 55 years; nativity, Newfoundland; admitted to the marine ward, Jefferson Hospital, Philadelphia, Pa., July 12, 1890; died March 19, 1891.

*History.*—On admission he was suffering with pain in the chest, night sweats, diarrhea, and debility. He was emaciated and had a cough, with muco-purulent expectoration. Both lungs presented the physical signs of tubercular disease. He was placed on extra diet, ol. morrhuæ, and whisky. The medical treatment was directed chiefly toward the relief of cough, night sweats, and diarrhea.

*Necropsy.*—The visceral and parietal layers of both pleura were bound firmly together. There were several large cavities in both lungs. The liver was granular, and the spleen enlarged.

## CASE 51.

J. D.; age, 33 years; United States; was admitted to the marine ward of the Sisters' Hospital at Buffalo, N. Y., May 23, 1891; died June 13, 1891.

*History.*—Upon admission he complained of weakness, loss of appetite, continued coughing, and night sweats. Patient was very much emaciated.

*Necropsy.*—*Rigor mortis* not well marked. Body poorly nourished. Heart and valves normal. In apex of left lung was found a cavity the size of an orange. The lung tissue was filled with tubercular deposit. There were some pleuritic adhesions and old cicatricial bands. In the apex of the right lung a cavity nearly the size of that in the left was found. The lung was not in as advanced stage of the disease as the other. Spleen enlarged; other organs normal.

## CASE 52.

P. D.; age, 56 years; nativity, New York; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., April 23, 1891. Died April 29, 1891.

*History.*—The patient had a slight chill three days before he was admitted to the hospital. After the chill followed headache, pains in the back and limbs, and some fever. He had but little pain in the chest, but considerable cough with expectoration. The tongue was coated; appetite poor; bowels constipated. He denied having been exposed. On examination his chest expansion was found to be very small. The respiratory murmur was exaggerated, moist râles were found in the apex of the left lung, and a few sonorous râles over the apex of the right lung. Dullness found over both apices. On April 24th his temperature rose to 39.8°; on the following night it was the same. On April 28th his temperature was 39.4°. It then gradually decreased up to the time of his death, which occurred at 11 o'clock, p. m., April 29th.

*Necropsy.*—Was held at twenty-five hours post-mortem. Left lung: Very adherent and œdematous. Right lung was everywhere adherent, œdematous showing hypostatic congestion and tubercular deposits in the apex. Heart: Large, pale, and flabby. A large ante-mortem clot in right auricle, extending into



right ventricle. Liver: Large, mottled in appearance, fatty, and cirrhotic; Spleen: Very soft. Kidneys: Completely covered with fat, of a stony hardness; capsule adherent.

## CASE 53.

A. T.; age 27; nativity, Norway; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., December 30, 1889; died February 13, 1891.

*History.*—Patient states that he began to cough three years previous to admission, with no expectoration. At the same time had a severe pain under right scapula, which left him at the expiration of three weeks. He also stated that he lost weight, and had night sweats; dyspnoea on exertion, chills followed by fever, especially at night. He said that his cough had gradually increased in severity, especially on awaking mornings; often vomited after a spell of coughing. Two years previous to admission had hemorrhages, afterwards expectorated blood; often his sputa was thick and contained lumps. He said that he was gradually growing worse. On physical examination, the following condition was found: Auscultation revealed subcrepitant râles over entire left lung anteriorly and posteriorly, also over right lung at apex anteriorly. Friction sounds were heard over lower portion of both lungs anteriorly. Patient gradually grew worse, having several hemorrhages from time to time, finally dying on date above given.

*Necropsy (twenty-one hours after death).*—*Rigor mortis* marked. Post-mortem lividity slight. A large quantity of blood was found within the chest; pleural cavity partially obliterated by old pleuritic adhesions. Left lung was so firmly adherent that it had to be cut in situ. A large cavity was found at the apex; tubercular deposits found throughout rest of the lung. Right lung was thoroughly adherent also. A large cavity was found at apex, also a cavity in the middle lobe; tubercular material disseminated throughout rest of the lung. Heart examined; the right auricle contained a post-mortem clot, the left ventricle contained an ante-mortem clot extending into the aorta, the heart was otherwise normal. Liver was enormously enlarged and fatty. Spleen twice the normal size and pulsatious. Left kidney examined; normal. Right kidney examined; normal.

## CASE 54.

C. M.; age, 48 years; nativity, Russia; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., January 14, 1891; died May 6, 1891.

*History.*—Patient stated that for two months previous to admission he vomited immediately after eating; constant pain in the stomach, more severe on ingestion of food; his bowels were constipated; said that he had not had an operation from bowels for one month. About one month after admission patient began to cough, with profuse expectoration.

Microscopical examination of sputa revealed tubercle bacilli. Physical signs: Right lung, slight dullness on percussion little below apex anteriorly; complained of pain in this region; fine, moist râles heard over apex anteriorly and posteriorly; respiration quickened; respiration jerky over left lung. Patient also had night sweats. Patient was relieved of the obstinate constipation, but grew gradually worse, finally dying on date above stated.

*Necropsy (five hours after death).*—*Rigor mortis* not well marked; post-mortem lividity marked; body greatly emaciated. Left lung adhesions posteriorly; lobes agglutinated; lung mottled: tubercular deposits in the apex: lobular pneumonia in middle part of the lower lobe; right lung adherent anteriorly; large cavity in apex: lobes agglutinated; tubercular deposits throughout rest of the lung; was also mottled. Heart was fatty and walls of right ventricle very much thinned. Liver adherent to diaphragm, small and fatty; spleen normal; kidneys normal.

## CASE 55.

D. C.; age, 47 years; nativity, Ireland; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., March 27, 1891; died May 6, 1891.

*History.*—Patient stated that he had been sick three months; he said that “he was told that he had bronchitis when first taken sick; two months previous to admission was taken with severe pain in chest, tickling in throat, cough, with profuse expectoration, especially in the morning. Patient expectorated blood on one or two occasions. He said that he lost flesh rapidly, and complained of great weakness; appetite good; bowels constipated; slept badly. Physical signs: Bronchial breathing was heard over the right lung anteriorly and posteriorly at apex extending to the middle portion of lung, subcrepitant râles heard at apex; bronchial breathing heard at apex of left lung anteriorly and posteriorly. Patient grew worse rapidly, dying on date above stated.

*Necropsy (eighteen hours after death).*—*Rigor mortis* fairly well marked. Post-mortem lividity marked; body emaciated; pericardium adherent to heart; evidence of an old pericarditis. Heart normal. Left lung adherent to all contiguous parts; fibrinous deposits on surface of lung; entire lung contained numerous small cavities. Right lung adherent to all contiguous parts; fibrinous deposits on surface of lung; a large cavity at apex; rest of the lung contained numerous small cavities. Liver shriveled and fatty; spleen pultaceous; kidneys apparently normal.

## CASE 56.

G. E.; age, 53 years; nativity, Maine; was admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., May 12, 1887; died, April 22, 1891.

*History.*—Patient stated that he had been sick two years. Family history good. Physical examination. Dullness on percussion over apex of right lung; auscultation revealed moist râles over apex of right lung. Patient remained in hospital after admission up to time of death, which took place on date as above stated.

*Necropsy.*—*Rigor mortis* marked. Post-mortem lividity marked; body greatly emaciated. Heart normal. Left lung adherent laterally and posteriorly; apex and upper lobe contained several cavities, which were lined with fibrin; the lower lobe congested and contained tubercular deposits. Right lung firmly adherent to all contiguous parts; apex broken down; upper lobe contained several cavities which were lined with fibrin; tubercular material throughout rest of the lung. Liver mottled, fatty, and nutmeg in appearance. Spleen much smaller than usual size. Left kidney pale, otherwise apparently normal; right kidney half the size of the left and granular. Other organs not examined.

## CASE 57.

H. H.; age, 32 years; nativity, Finland; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., March 16, 1891. Died April 26, 1891.

*History.*—Ten days before the patient was admitted to the hospital he had been taken with a sharp, severe pain in his right chest. He gave a history of exposure. On examination the percussion note was very dull over both the anterior and posterior chest walls. Subcrepitant râles were heard over the whole chest. The breathing was sibilant. Sputa contained blood. A little cough at first, and later it became annoying. On March 23 his temperature rose to 40 °C. His temperature remained high until April 20, after which time it remained nearly normal up to the time of the patient's death, which occurred as above stated.



*Necropsy*.—Body emaciated. Left lung was adherent to all the adjacent structures; numerous small cavities were found in upper lobe, and the whole lung was infiltrated with tubercular deposits. Right lung was in same condition. Heart: Post-mortem clots were found in right auricle and right ventricle. Liver was fatty. Spleen was very soft. Kidneys were normal.

## CASE 58.

J. C.: age, 54 years; nativity, Denmark; admitted to U. S. Marine Hospital, San Francisco, Cal., March 13, 1891; died April 29, 1891.

*History*.—This patient had been suffering several months with chronic bronchitis. When admitted was very feeble and suffered from a distressing cough. On examination râles were heard over both lungs, but no dullness could be determined until the latter part of his illness.

*Necropsy*.—*Rigor mortis* well marked. General nourishment poor. Heart weighed 750 grams; valves normal; walls flabby. There was a slight pericarditis. Both lungs contained extensive tubercular deposits, the left being most affected, and presenting a cavity of considerable size; weight of lung, 1,350 grams; right, 1,100 grams. The left pleural cavity contained a considerable amount of mucopurulent fluid; the right also contained a small amount of the same fluid. Each kidney weighed 170 grams; spleen, 180 grams.

## CASE 59.

B. McC.: age, 40 years; nativity, New York; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., November 5, 1890; died January 26, 1891.

*History*.—Patient stated that he was taken ill about six months previous to the date of his admission to this hospital. He had always enjoyed good health previous to this illness. During the month of June the patient had been under treatment in this hospital but had been discharged greatly improved.

Patient's clinical record, compiled during his previous course of treatment at this hospital, reveals that he was admitted for treatment on June 14, 1890, and gave the following brief history:

On May 19, 1890, was greatly exposed while working on the docks at Aspinwall. Afterwards patient had two chills, followed by nausea, vomiting, and high fever; bowels were regular. About the same time a severe and wearing cough commenced, associated with a sharp, lancinating pain in left side, and considerable mucous expectoration.

Physical examination revealed a friction sound laterally on the left side. Vocal resonance was increased, a murmur was heard with ventricular systole. On June 23, 1890, sputum was examined and the bacilli of tubercle found. Was discharged June 25, 1890, improved.

On applying for admission in November, 1890, patient stated that he was suddenly taken much worse on or about October 27, 1890. His cough became much worse and he expectorated a great deal. His appetite was very poor, he had severe night sweats, and his weight had been diminishing very rapidly. He also stated that he was growing weaker day by day, felt nervous at all times, could not sleep at night. His bowels remained regular. Physical examination revealed broncho-vesicular breathing, anteriorly and posteriorly, in left lung at apex and throughout the upper lobe; the respiratory sounds were increased. Patient's temperature ran moderately high, ranging between 37° C. and 39° C., but remaining generally above the normal point. From about November 25, 1890, onward, patient sank steadily, complaining of no particular nor localized pain, but only a general sense of steadily increasing weakness, until he finally died on date above stated.

*Necropsy*.—Post-mortem examination was made about twelve hours after death. *Rigor mortis* was marked. Post-mortem lividity was marked. Right lung was found adherent to all surrounding structures. A large cavity was discovered at lower portion of upper lobe. The whole lung was infiltrated with tuberculous material. Left lung was adherent to surrounding structures. A large cavity was found at its apex, and numerous purulent foci were scattered throughout its substance. Heart: A post-mortem clot was found in the left auricle and left ventricle; otherwise the organ was normal. Liver was small and rather firm; otherwise normal. Spleen was rather small; otherwise normal. Left kidney, capsule non-adherent; normal otherwise. Right kidney was in an identical condition with the left. Intestines were normal.

## CASE 60.

F. L.; age, 20 years; nativity, Italy; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., April 16, 1891; died June 17, 1891.

*History*.—Patient stated that he had been sick about one month previous to his admission. He was taken with a chill, fever, pain in chest, cough, profuse expectoration and headache, appetite poor, bowels regular; sleeps badly.

Physical signs: Dullness on percussion over entire left lung; moist râles heard over lung anteriorly and posteriorly. He was readmitted April 28, 1891, for tubercle of lung, and died on date above stated.

*Necropsy (twenty-four hours after death)*.—Body greatly emaciated; no *rigor mortis*. Hypostatic congestion posteriorly. Both lungs were adherent to chest walls and studded with tubercles; there were large cavities in apexes of each. Heart normal. Liver enlarged, congested, a little fatty and somewhat nutmeg in appearance. Spleen somewhat enlarged. Kidneys large and pale; capsules non-adherent; cortical substance thinned.

## CASE 61.

A. C.; age, 23 years; nativity, England; admitted to the U. S. Marine Hospital, San Francisco, Cal., January 5, 1891; died January 15, 1891.

*History*.—This patient had been in the hospital several times. When first admitted, October 17, 1890, he was suffering with scurvy; also had a very severe cough and an effusion in the right pleural cavity. On aspiration a considerable amount of bloody fluid was removed. He improved somewhat and upon his own request was discharged. When admitted, January 5, 1891, he was quite feeble; his cough was very distressing, and he complained of difficult breathing. On examination he gave all the signs and symptoms of tuberculosis. A few days before death his pulse was quite rapid and he became partially unconscious.

*Necropsy (twenty-four hours after death)*.—The body was markedly emaciated and *rigor mortis* well marked. There was a very thick fibrinous deposit on the pericardium, and in its cavity about 100 cm<sup>3</sup> of straw-colored fluid was found. The apex of right lung was firmly bound by old pleuritic adhesions, and about 1,000 cm<sup>3</sup> of fluid was found in right pleural cavity. Right lung thickly studded with tubercle, and a few also found in left lung. Cortical portion of kidney slightly atrophied, and there were streaks of fatty degeneration running through it.

## CASE 62.

M. M.; age, 33 years; nativity, Pennsylvania; admitted to U. S. Marine Hospital, Vineyard Haven, Mass., January 29, 1891, and died April 2, 1891.

*History*.—Able bodied up to three years ago, when he was taken ill with rheumatism and malarial fever, from which he suffered for eight months. Has coughed for about two years past. Taken suddenly ill December 22, 1890, with



nausea, vomiting, and increased expectoration. Best weight (1886) was 146 pounds; present weight, 105 pounds. Admitted to Providence (R. I.) Hospital, January 10, 1891, and by transfer January 29 to the Marine Hospital, Vineyard Haven.

Physical examination showed solidification of apices and upper lobes of both lungs, with a cavity on the left side.

The usual treatment of tonics, expectorants, and dieties was followed without benefit till his death, two months after admission.

*Necropsy (twenty-four hours after death).*—Both lungs tuberculous and softened in spots. Cavity in left lung as large as a lemon. Lungs adherent to pleura throughout. Thoracic and abdominal viscera normal, except as above stated. The vermiform appendix bound down to the adjoining intestines by old adhesions, and some evidences of tubercular deposit about the inflammatory mat formed by the ileum colon and peritoneum.

#### CASE 63.

W. B.; age, 26 years; nativity, Georgia (Negro race); admitted to St. Joseph's Infirmary, Savannah, Ga., October 23, 1890; died February 21, 1891.

*History.*—Family history bad. Has had cough for a year past; now has night sweats and cough with tubercular expectoration. Physical examination reveals large bubbling râles at upper portion of lungs; more pronounced on right side. Progressive emaciation, occasional diarrhea, and temporary jaundice during the course of the disease, diarrhea becoming persistent and dyspnoea distressing toward the last.

*Necropsy (twenty hours after death).*—Body emaciated; *rigor mortis* slight. Heart: Pericardial sack contained 200 c. c. serous fluid. Size of heart normal, and valves competent. Lungs: Left, weight, 1,000 g.; pleural cavity, no adhesion. Tubercular deposits in various stages of softening; lower lobe congested and had some deposits; right lung weighed 1,170 g.; pleural cavity; adhesions at apex; entire lung infiltrated with tubercular deposits; broken down and small cavities formed here and there. Abdomen contained a moderate quantity of serous effusion; abdominal organs normal in size and appearance.

#### CASE 64.

W. T.; age, 22; a native of Mississippi; was admitted to hospital, St. Louis, Mo., May 1, 1891; died May 5, 1891.

*History.*—Cough of one year's duration, pain in chest, great dyspnoea, swelling of feet, poor appetite, sore throat, and great prostration; dullness over middle lobe of right lung, with coarse râles. Tympanitic resonance over apexes of both lungs, and cavernous respiration.

*Necropsy.*—Large cavities in upper lobes of both lungs. Abdominal organs congested. There were many small cavities in lower lobe of left lung.

#### CASE 65.

C. L.: age, 19; born in Kentucky; admitted to U. S. Marine Hospital, Louisville, Ky., April 22, 1890; readmitted February 3, 1891, died March 6, 1891.

*History.*—On first admission patient had an injury to the foot which developed into tuberculosis, for which foot was amputated. Afterwards tubercle of lung was diagnosed and treated in the usual manner.

*Necropsy (eighteen hours after death).*—Pleuritic adhesions general. Both lungs tuberculous, several cavities filled with pus in each lung. Heart normal. In intestinal tract there were about a dozen ulcers of variable sizes, from a nickel to a quarter of a dollar. Liver apparently healthy. Kidneys ditto. Brain, not examined.

## CASE 66.

S. P.; age, 40; a native of Tennessee; was admitted to the Marine Hospital, St. Louis, Mo., February 4, 1891; died May 17, 1891.

*History.*—Cough one and one-half years; pain in chest and sometimes over stomach; dyspnoea; poor appetite; loss of flesh and strength; dullness over both lungs, and coarse râles. Later a tympanitic note was present over left apex, and still later over both apexes. His failure gradual.

*Necropsy.*—Large cavity in right upper lobe, and several small cavities in right lower lobe. Large cavity in left upper lobe, with many small cavities in left lower lobe.

## CASE 67.

J. D.; age, 19 years; born in Mississippi; was admitted to the U. S. Marine Hospital, Louisville, Ky., October 31, 1890; died January 2, 1891.

*History.*—Had been in hospital from January 14, 1890, to October 26, 1890, for tubercle of lung, and after an absence of a week returned. Patient has had the usual symptoms—cough, progressive emaciation, and gradual decline. Towards the last his lower limbs became dropsical.

*Necropsy (eighteen hours after death).*—Body much emaciated; two large abscesses, one on the back and one on chest, the former running up alongside the dorsal vertebræ. Pleura adherent. The lungs presented tubercular and caseous formation in various stages of progress, and there were several collections of pus. Other organs apparently healthy.

## CASE 68.

F. E. (colored); age, 31; a native of Missouri; was admitted to the Marine Hospital, St. Louis, Mo., April 27, 1891; died May 6, 1891.

*History.*—Cough one and one-half years; pain in chest, head, and throat; urgent dyspnoea; swelling of feet and legs; poor appetite. Physical examination showed dullness over whole left lung except at apex, where the note was slightly tympanitic, dullness over R. apex; coarse râles over R. middle and lower lobes and over left lower lobe.

*Necropsy.*—Abdominal organs congested; left pleural cavity obliterated by firm old adhesions; cavities in upper lobes of both lungs.

## CASE 69.

J. J.; age, 29 years; nativity, Norway; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., December 1, 1890; died January 7, 1891.

*History.*—Patient was in this hospital three years ago and was discharged "improved." Two years ago was in the Marine Hospital, New Orleans, La., and was again discharged "improved," feeling much better up to within ten months of his admission here. In each instance of his residence in hospital he was treated for tubercle of lung. Ten months previous to his last admission here patient stated that he caught a very severe cold, and had suffered since then with cough and expectoration. When first taken ill (ten months before admission) he expectorated blood, but had not done so for several months until the day of his admission, when his sputum was again streaked with blood. On admission patient stated that for several days he had suffered from night sweats and a sensation of chilliness and malaise; he also had diarrhea; was very weak and had aphonia. Physical examination revealed bubbling râles over both lungs, anteriorly, and sibilant râles scattered throughout each lung. Bubbling râles were heard posteriorly at apex of left lung, and tubular breathing was very distinct in the seat of the lung. In the right lung, cavernous respiration was found at



apex and bronchial breathing in the middle and lower portions. On December 2, the day after admission, noisy, moist râles were heard all over the chest, partly depending upon hemorrhage. On December 4 considerable pain was present in left side, which continued for several weeks. On the 26th considerable bronchitis was developed, and physical examination on the 27th revealed loud sonorous ronchi with moist, coarse râles throughout both lungs. Patient at this time, however, was feeling better. From this time out he sank steadily, finally dying on date above stated.

*Necropsy (thirteen hours after death).—Rigor mortis* was marked. Post-mortem lividity marked. Chest cavity was found full of serum. Left lung was found to be entirely adherent; there was a large cavity at the apex and small cavities throughout. Right lung was adherent at apex and laterally. Tubercular matter was disseminated throughout lung and there were cavities at the apex. Heart showed ante-mortem clot in left auricle; the rest of the heart cavities were normal. Liver was normal. Spleen was normal. Left kidney was normal. Right kidney was normal.

#### CASE 70.

N. S.; nativity, Sweden; age 36 years; was admitted to the marine ward of the Sisters' Hospital, Buffalo, N. Y., December 13, 1890; died February 23, 1891.

*History.*—He complained of pain in left chest, general muscular pains, particularly intercostal and abdominal. He had hemoptysis about one year previous to his admission. He was expectorating an abundance of frothy mucus containing a large amount of cheesy matter, which sank to the bottom of the sputum cup. Appetite poor; skin of a peculiar ashy hue; pulse weak and small. Had night sweats.

*Necropsy.*—*Rigor mortis* not well marked; body poorly nourished. Heart pale and flabby; valves normal. Upper part of left lung hepatized; firm adhesions at apex. A large cavity at apex filled with pus. Right lung emphysematous; other organs not examined.

#### CASE 71.

J. H.; age, 29 years; nativity, Rhode Island; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., November 28, 1890; died February 14, 1891.

*History.*—Patient stated that seven months previous to admission he contracted a severe cold, followed by a cough, which annoyed him during the night, expectorating a great deal. He said that he improved after a few weeks and felt very well till one month previous to admission, when he contracted a cold and the former symptoms recurred; also had night sweats. Appetite was poor; bowels regular; slept badly. On physical examination the following condition was found: Left lung: Bronchial breathing was heard on auscultation over apex anteriorly and posteriorly, also sibilant râles heard over lower portion of upper lobe. Slight dullness on percussion over affected area. Right lung: Respiratory sounds exaggerated and more marked posteriorly. Patient grew rapidly worse, dying on date above stated.

*Necropsy (forty-five hours after death).—Rigor mortis* marked. Post-mortem lividity slightly marked. Great emaciation. Chest filled with serum, also pericardial sac filled with serum. Left lung was so firmly adherent, was examined in situ. A large cavity was found at apex, tubercular masses disseminated throughout rest of lung. Right lung examined; several small cavities found throughout the lung, containing tubercular material. Heart examined, slightly enlarged, ante-mortem clot in right ventricle, post-mortem clot in left ventricle. Liver examined; normal. Spleen examined; pale, otherwise normal. Left kidney normal. Right kidney normal.

## CASE 72.

P. C.; age, 28 years; nativity, Ireland; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., February 2, 1891; died March 28, 1891.

*History.*—Patient stated that one year previous to admission he expectorated blood, and since that time had been troubled with a cough. Three months previous to admission was taken with pain on left side; had difficulty in breathing, especially on slight exertion; also had night sweats.

Physical signs: Dullness on percussion of left lung; anteriorly and posteriorly bronchial breathing over left apex; respiration jerky over lung anteriorly. Patient's temperature was between 38° C. and 40° C. during his illness; not at any time was it below 38° C. Treatment was palliative, he sank rapidly, dying on date as above stated.

*Necropsy (twenty-nine hours after death).*—*Rigor mortis* marked. Post-mortem lividity well marked. Body fairly well nourished. Pericardium thickened and filled with serous fluid. Heart examined; found to be normal. Left lung: The pleura thickened and covered with layers of lymph adherent to chest wall by bands of fibrous tissue and also firmly adherent to pericardium; between the bands of lymph the lung was separate from the chest wall; the lung contained numerous cavities of different sizes; fibrous tissue much increased, especially around cavities. Right lung flat and completely and firmly adherent to contiguous parts; on section, lung tissue completely destroyed and broken down. Liver somewhat enlarged and adherent to diaphragm; pale and fatty. Spleen blue in color, slightly enlarged and notched; normal in appearance on section. Kidneys: Capsule nonadherent; apparently normal. Other organs not examined.

## CASE 73.

P. G.; age, 49 years; nativity, New York; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., October 25, 1890; died February 2, 1891.

*History.*—Patient complained of difficulty in breathing, especially on exertion; had a constant dry cough, expectorating a great quantity, especially at night. He stated that he had a severe pain in lungs, both anteriorly and posteriorly. Had no appetite; had been losing strength and flesh very rapidly.

Physical signs: Dullness was found on percussion over the right lung, more marked anteriorly, and at the apex where tubular breathing was also heard. Sibilant râles were heard anteriorly over middle lobe, and vocal resonance was very marked at the apex. Posteriorly there was dullness, with crepitant râles in the lower lobe and vocal resonance marked at the apex. The left lung revealed tubular breathing, which, however, was not so marked as in the right.

After admission patient complained almost constantly of a severe pain in the left chest, and his throat became very sore, evidently being due to laryngitis, laryngoscopic examination revealing the mucous membrane much reddened below the vocal cords. The patient's cough, during all this period, was very annoying and painful. Patient sank steadily, dying on date above stated.

*Necropsy (twelve hours after death).*—*Rigor mortis* was marked. Post-mortem lividity was marked. Left lung was found adherent over its entire surface and the lung substance pultaceous. Small cavities were found throughout the lung. Right lung was generally adherent and was examined "in situ." Its substance was much firmer than that of the left lung; it contained numerous small cavities at the apex and tubercular deposits were disseminated throughout the entire organ. Heart contained a large ante-mortem clot in the right auricle; otherwise it was normal. Liver was adherent at its superior surface to the diaphragm. Its substance was slightly fatty but otherwise normal. Spleen was normal. Left kidney was small and in a condition of parenchymatous degeneration. Right



kidney was small; appeared normal. Other organs not specially examined, but appeared normal.

## CASE 74.

G. M.: age, 28 years; nativity, Austria; admitted to U. S. Marine Hospital, New Orleans, La., November 27, 1890; died January 3, 1891.

*History.*—The patient could not speak English, and little could be got of the history of his disease before the time of his admission to the hospital. He had then diarrhoea, pain in the chest, a slight cough, and fever varying from day to day, and also from morning to night. He was treated for remittent malarial fever until December 14, when he was discharged and readmitted on a diagnosis of tubercle of the lung. Death resulted from gradual exhaustion.

*Necropsy (eight hours after death).*—The body was that of a white man, greatly emaciated; *rigor mortis* well marked; the pupils dilated. The heart weighed 205 grams. All its valves were competent. The pericardial sac contained considerable serous fluid. The left lung weighed 1,110 grams; its upper lobe was destroyed by a tubercular process; its lower lobe contained tuberculous deposits. The left pleural cavity was almost obliterated by adhesions. The right lung weighed 700 grams. Its upper lobe was solidified by tuberculous infiltration and its middle and lower lobes contained similar deposits. The mesenteric glands were found enlarged. Two intussusceptions of the small intestine existed but were evidently post mortem, as no inflammation of the peritoneum was present. The liver was slightly cirrhotic, and weighed 1,700 grams. All other organs examined were found normal. Weight of left kidney, 200 grams; of right, 180 grams; weight of spleen, 230 grams. The brain weighed 1,520 grams and was deeply convoluted.

## CASE 75.

J. S.: age, 38 years; nativity, North Carolina; was admitted to the U. S. Marine Hospital, New Orleans, La., November 13, 1890; died February 9, 1891.

*History.*—The patient gave on admission a distinct history of tubercle of the lungs, and the existence of the disease was confirmed by physical examination. Persistent diarrhoea and occasional vomiting continued during the time he was in the hospital. He gradually became exhausted, and died on date above given at 4:45 p. m.

*Necropsy (eleven hours post-mortem).*—*Rigor mortis* was well marked. The body was that of a well-developed but poorly nourished white male adult. The left lung weighed 945 grams. It was consolidated at the apex, while the base was studded with small tubercle. The right lung weighed 1,540 grams, and was consolidated throughout. The pleural cavities contained considerable fluid, and above and in front of which the pleural surfaces were adherent. The heart weighed 320 grams. The pericardial sac contained an excess of fluid. There were slight adhesions. The ileum contained numerous tubercular ulcers. The large intestine had a few small ulcers of a similar character. The liver was cirrhotic and weighed 1,730 grams. The left kidney weighed 180 grams; the right, 185 grams. The spleen weighed 850 grams.

## CASE 76.

J. S.: age, 40 years; nativity, Finland; admitted to U. S. Marine Hospital, San Francisco, Cal., January 11, 1891; died January 30, 1891.

*History.*—This patient had been under treatment for a short while in this hospital some two or three months previous. He was then suffering from a very severe cough, with symptoms of incipient phthisis. He improved a little, and at his own request was discharged. On admission, January 11, his condition was

decidedly worse. He stated that he had coughed up a large quantity of blood on several occasions. A day or so after admission he had a very severe hemorrhage from the lungs. After this he grew rapidly worse.

*Necropsy.*—Lungs filled with tubercle. Cavity in apex of left lung. Heart enlarged; cavities slightly dilated, and the walls very soft. No other organs examined.

#### CASE 77.

W. B.; age, 56 years; a native of Rhode Island; was admitted to the marine division of the St. Francis Xavier Infirmary, at Charleston, S. C., on the 21st January, and died on the 23d of January, 1891.

*History.*—When admitted the patient was in a very weak state, and presented a history of consumption of some months' duration. Physical examination gave evidence of commencing lung disintegration. The left apex was consolidated and thought to contain a cavity, sputum purulent; cover-glass preparations giving numbers of tubercle bacilli to each field. At the base of each lung and posteriorly there was an œdema which was marked. Respiration, 30; temperature, 39.5° C.; pulse, 120. All efforts were made to improve the action of the failing heart, but to no purpose, and at the end there was total suppression of urine. Death from heart failure.

*Necropsy (five hours post-mortem).*—Body of white male; height, 170 cm. Post-mortem lividity about the buttocks and loins; *rigor mortis* slight; great emaciation; pupils contracted. The heart was dark and full of clotted blood, and in diastole. The pericardium normal; sac contained 250 c. c. fluid; valves normal; tricuspid relatively insufficient, owing to the dilated right ventricle, whose wall was slightly thickened. Veins engorged. Left pleural cavity partially obliterated, and costal pleura infiltrated with gray tubercle. Apex of lung was consolidated but there was no cavity, only a dilated bronchus; tubercles were scattered throughout this lung; lower lobe, œdematous. Right lung, tubercular at apex; œdematous in lower lobes. Alimentary tract macroscopically normal. Liver congested and portal veins much dilated; weight, 2,740 grams. Kidneys appeared congested, otherwise normal as to size and marking, yet sections showed a most marked exudative inflammation. Some tubes filled with granular casts. Spleen congested and somewhat enlarged. Brain, cord, and their membranes not examined.

#### CASE 78.

S. W.; age, 18; a native of South Carolina; was admitted to the marine division of the St. Francis Xavier Infirmary, at Charleston, S. C., on 11th May and died June 6, 1891.

*History.*—Tuberculosis in several members of his family. When examined the lungs were found generally infiltrated; both apices consolidated; vesicular breathing generally diminished; loud tubal breathing, with numerous bubbling râles; no cavity detected; tubercle bacilli in immense numbers isolated from cheesy particles in sputum. Night sweats, high temperature markings, with great exhaustion characterized the case. A number of slight hemorrhages also occurred. Death from exhaustion.

*Necropsy (six hours post-mortem)*—revealed the pleuræ adherent and tubercular; lungs infiltrated in general with pus, with numberless foci of catarrhal inflammation undergoing cheesy degeneration and liquefaction. Liver fatty; spleen with amyloid change; kidneys apparently normal; intestinal tract apparently normal; mesenteric glands not enlarged. Bladder and urethra normal.



## CASE 79.

C. R.; age, 18; a native of South Carolina; was admitted to the marine division of the St. Francis Xavier Infirmary, at Charleston, S. C., on November 28, 1890, and died January 4, 1891.

*History*.—Physical examination showed tuberculosis in an advanced stage. Left lung disorganized; pleuritic friction murmur of lower lobe. Right lung consolidated at apex, with generally impaired breathing sounds. Tubercle bacilli isolated from sputum. Treatment generally tonic and expectant. Death from hectic exhaustion.

*Necropsy (seven hours post-mortem)*.—Body of poorly developed young male. No rigor. No hypostasis. Height, 150 cm. Thorax examined. Left pleural cavity contained 300 cm<sup>3</sup> of pus from an abscess at the periphery of the lung which had ruptured the visceral pleura; membrane studded with cheesy tubercles; lung compressed and contained several cavities; tubercular infiltration general; right pleuræ generally adherent and studded with gray tubercles; lung consolidated, presenting numerous points of confluent catarrhal pneumonia, from which invariably multitudes of bacilli were differentiated with the Ziehl-Neilsen stain. Unfortunately the pleura, with its gray tubercles, was inadvertently thrown away. Sections were not mounted from the lung, but macroscopical evidence was in favor of an original inflammatory action, and not neoplastic growth. There were no tubercles at any other point. Liver, fatty and light yellow. Spleen contained a few "sago" points, but the degeneration was not general. Kidneys normal in size and marking; suprarenals not tubercular. Intestines had no appearance of infiltration. The mesenteric glands not enlarged. Bladder and urethra not tubercular.

## CASE 80.

T. P.; age, 24; nativity, Massachusetts; admitted to U. S. Marine Hospital, Mobile, Ala., October 22, 1890; died February 12, 1891.

*History*.—Patient when admitted said that he had been suffering for a year with cough; occasionally a slight hæmoptysis, dyspnœa, night sweats, high fever. He was now very much emaciated and showed the usual symptoms of tuberculosis of the lungs.

*Necropsy (eighteen hours after death)*.—External appearances: Post-mortem lividity absent; *rigor mortis*, feeble; marked emaciation. Thorax: Pericardium healthy; heart normal, weighing 340 grams. Left lung weighed 920 grams; it was solidified, being studded with yellow tubercles; a large cavity existed in the apex, and several smaller ones in the lower lobe. Right lung was similar in appearance to the left; several small cavities were found, and its weight was 1,050 grams. Both lungs were firmly adherent. The pleura on both sides was thickened, contained numerous tubercles, and the cavity almost obliterated. Abdominal cavity: Stomach healthy, some of Peyer's patches and thickened infiltrated with tubercles, and a few ulcerated. Liver weighed 1,385 grams, and had undergone fatty degeneration in several places. Kidneys normal; right weighing 200 grams, left, 210 grams. Brain weighed 1,350 grams.

## CASE 81.

J. F.; age, 22 years; nativity, Maine; admitted to U. S. Marine Hospital, Mobile, Ala., July 1, 1890; died January 8, 1891.

*History*.—Patient had been sick some time previous to his admission. He was suffering with the usual symptoms of tuberculosis of the lungs, having severe cough, night sweats, hæmoptysis, emaciation, and hectic fever. On admission

the following physical signs were noted : Percussion showed marked dullness over the apices of both lungs. On auscultation, numerous râles were heard over both lungs; also marked increase of vocal resonance. Later in the disease considerable destruction of the lung tissue occurred, causing a large cavity in the right lung. The patient had colliquative diarrhea towards the last, and gradually became weaker until death.

*Necropsy (twenty hours after death).*—External appearance: Slight post-mortem lividity; *rigor mortis* slight; marked emaciation. Thorax: The pericardium was found thickened, and contained 20 c. c. of pale fluid; no evidences of inflammation. The heart was normal in size and structure; the valves were competent and of the usual appearance. The heart weighed 350 grams. The left lung weighed 700 grams; it was generally adherent, and contained several small cavities in the apex; the whole structure was changed, being infiltrated throughout with tubercular matter. The right lung weighed 1,150 grams. It was firmly adherent at the apex, which contained a large cavity, being 10 cm. long and 7 cm. wide, filled with mucopurulent fluid. The remainder of the lung was studded with yellow tubercles. The pleura was thickened and contained numerous tubercles. The cavity was almost obliterated with numerous adhesions. Abdominal cavity: The stomach was normal; Peyer's patches were infiltrated with tubercles, and some were ulcerated; large intestine normal. Liver weighed 1,400 grams; was of a brownish-yellow color and contained several small areas of fatty degeneration. Pancreas normal, weighing 100 grams. The kidneys weighed 470 grams. The right and left kidneys were joined together at their lower ends by a third portion, so the whole structure was horseshoe shaped. This third kidney was 3 inches long, 1 to 1½ inches wide, and placed transversely in the abdominal cavity, and in intimate relation with the spinal column. A ureter 1½ inches long from this portion joined at almost right angles with the right ureter. The left ureter extended into this third portion. Right kidney was 5 inches long and 2½ inches wide; left about same size as right. Ureters were of normal size. Brain not examined.

#### DIABETES MELLITUS.

T. W. B.; age, 27; nativity, Maryland; admitted to U. S. Marine Hospital, Baltimore, Md., March 7, and died May 6, 1891.

*History.*—Had been under treatment in the Johns Hopkins Hospital for about four months during the winter and spring of 1890, which, he stated, was for diabetes, and was discharged much improved. On admission to this hospital he was much emaciated, although his appetite was morbid. The quantity of urine voided in twenty-four hours amounted to 8,000 c. c. to 9,500 c. c. the specific gravity from 1.038 to 1.042, color pale and odor sweetish. Dietetic and therapeutic treatment usual in this disease, reduced the quantity of urine voided in twenty-four hours to 2,500 to 3,500 c. c. but had little effect on the specific gravity. The patient was able to be up and about, and one afternoon, a week before death, he lay down on the piazza of the ward in the hot sun and went to sleep. This was followed by a severe fever that evening, which was present till death.

*Necropsy.*—Passed Asst. Surg. Perry, who made the autopsy, states that, while thorough examination of all the organs was made, he could find no lesions worthy a of mention.



## CEREBRAL HEMORRHAGE.

## CASE 1.

W. H.; age, 50 years; native of Sweden; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., on March 11, 1889; died August 7, 1890.

*History.*—On admission he seemed to have very little power over the right leg, but some control over the arm. Can talk, but has a nasal form of aphasia. States he has been a very moderate drinker and was never intoxicated in his life. Had gonorrhœa, and subsequently an ulcer of the penis about the time of the last war in this country. His final sickness came on very suddenly, but previous to that he was very healthy.

*July 7, 1890.*—Patient has been steadily but slowly progressing from bad to worse. He has had no medication except such as was necessary to keep the bowels in proper condition. The paralysis has been progressive. The aphasia appears to be of the ataxic variety. The consensus of symptoms all seem to indicate tumor of the brain, judged to be probably of the cerebellum in the neighborhood of the pons. At this date, July 7, 1890, his right side is totally paralyzed from the neck downward. He protrudes his tongue normally. There is no pupillary involvement, nor any perceptible drawing of the muscles of the face. He sleeps a great deal, and has involuntary evacuations. The reflexes are abnormal about the genitals. His hands have to be confined in order to prevent interference with the genitalia, although there appears to be no special desire to masturbate.

From this time out, for one month, the patient sank steadily, and finally died August 7, 1890, at 11:05 o'clock a. m.

*Necropsy (twenty-four hours after death).*—Pleura were found normal. Left lung was found the seat of hypostatic congestion; otherwise normal. Right lung the same as left lung. Pericardial sac was to all appearances normal. Heart was found covered with fat; the left ventricle was hypertrophied and in a state of fatty infiltration, but not degeneration; the right ventricle was in the same condition as the left; the auricles were normal; all the valves were normal. Liver: Surface very dark slate-colored and mottled; the substance was deeply congested; the gall bladder contained but very little fluid; two large gall stones were found; the duct was pervious. Spleen was found of a dark slate color, enlarged, and adherent to the contiguous structures; it was also the seat of hypostatic congestion. Kidneys: The left kidney was small, capsule adherent, and contained cysts; the cortex was found so contracted that the kidney was narrowed, and but a small margin of the kidney left; right kidney was small; presented same appearances as the left. Stomach and intestines were found perfectly normal. Bladder was found considerably distended and perfectly normal. Spinal cord was not examined. Brain: On removal of the brain a small tumor was found developed on the periosteum directly over the right orbit. It was a gummatous growth. A hemorrhage was found in the internal capsule, involving the lowermost borders of the lenticular nucleus. The hemorrhage was old. Softening was found in the temporo-sphenoidal lobe (superior). A small blue spot, no doubt an old hemorrhage, was found underneath the superior frontal convolution of right side of brain. All the arteries of the brain were found calcareous, and calcareous plaques were observed. Vegetative growths were noticed in the cerebral arteries.

## HEMORRHAGE INTO THE SPINAL CORD.

D. McN.; age, 35 years; United States; admitted to the marine ward, Sisters' Hospital, Buffalo, N. Y., November 17, 1890; died March 7, 1891.

*History*.—He presented the following symptoms, viz: Pain in small of back, muscular weakness, especially of hips and legs; became exhausted easily; muscles twitch; skin hyperæsthetic. Weakness progressed to paralysis of legs, with loss of sensation, followed by incontinence of urine and involuntary evacuations of the bowels.

*Necropsy*.—*Rigor mortis* present. Body poorly nourished. Upon opening the spinal canal, the cord at the first lumbar vertebræ was found to be enlarged, membranes thickened, and having a reddish opaque appearance. The cord presented a bluish color and had a doughy consistency. There were evidences of myelitis above and below the lesion. Other organs not examined.

## INFLAMMATION OF MEMBRANES OF BRAIN AND SPINAL CORD.

## CASE 1.

J. M.; age, 20; nativity, Ireland; admitted to Marine Hospital, New York, June 30, 1890.

*History*.—Patient's story is that three days prior to admission he fell overboard, caught cold, had chill, fever, pain in left chest. Later developed severe pain in head and in spinal cord, stiffness of neck, high temperatures, photophobia, nystagmus for two days prior to admission. On admission, no general nervous symptoms, except some hyperæsthesia; cerebration delayed. Pupils uniformly dilated. Physical examination—Lungs: Negative. Heart: Apex beat displaced to left; exaggerated action; no organic lesions.

*July 12*.—External divergence of right eye; semicomatose; ophthalmoscope shows choked disks.

*July 15*.—Hiccoughing; some ecchymosis under right eye. Died at 6 p. m., July 15.

*Necropsy (eighteen hours post-mortem)*.—Slight post-mortem lividity, *rigor mortis* marked, general nourishment fair, pupils normal. Heart: Pericardial sac empty; valves and muscle walls normal. Left lung: Hypostatic congestion close adhesion over entire thoracic surface. Numerous hemorrhagic infarctions. Right lung: Pleura normal; scattered hemorrhagic infarctions of dark greenish-brown color. Liver: Enlarged, surface mottled, and dark blue friable condition of convexity; fatty degeneration. Gall bladder, full of bile. Kidney, left, cloudy swelling, markings slightly obscured. Kidney, right, same as left. Intestines full of dark-colored fluid. Spleen, normal. Brain: Dura mater adherent over convexity of brain, congested. Pia mater: Congested, and numerous collections of pus between convolutions, bulging up pia. Both lateral ventricles distended with a thick, curdy purulent fluid (150 c. c.), which also filled fourth ventricle and distended sheaths of spinal cord. Inner walls of lateral ventricles covered with thick fibrinous exudation. Choroid plexus softened, congested, almost broken down. Brain on section hyperæmic; medulla and cord softened; other organs not examined.

## CASE 2.

E. U.; age and nativity, unknown (unconscious); was admitted to U. S. Marines Hospital, San Francisco, Cal., December 27, and died December 28, 1890.

*History*.—This patient when admitted was in an unconscious condition. No history of the case could be obtained. His pupils were very small. Respiration



accelerated. Pulse very weak. Bladder distended with urine. No diagnosis made.

*Necropsy.*—Body fairly well nourished. The pia mater and arachnoid membranes of both the brain and spinal cord were thickened and congested, with a purulent exudation beneath the pia mater. The right cerebrum for a small space anteriorly was inflamed. Pus was found in the lateral ventricles. The lungs were congested. There was a slight fatty degeneration of the heart, liver, and kidneys. Spleen very soft with hemorrhagic infarctions scattered through it. Stomach and intestines normal.

### CASE 3.

G. E.; age, 45 years; nativity, Georgia; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., April 22, 1891; died May 1, 1891.

*History.*—On being admitted to the hospital the patient stated that he had had yearly attacks of rheumatism for six or seven years past. The present attack had existed for five months, and was confined principally to the thigh, knee, and ankle joint, and slightly to the shoulder. He also complained of considerable pain on the left side of head. Had been confined to bed all winter. Denied that at any time his joints had been much enlarged, but stated that on walking the pain was excruciating. Bowels always regular. Appetite good. When admitted to the hospital his temperature was  $37.3^{\circ}$ ; on April 24 it was  $36.4^{\circ}$ ; on April 27 it rose to  $39^{\circ}$ , but fell to  $35^{\circ}$  on April 29; on April 30, it rose to normal, but soon became subnormal, and remained so up to the time of the patient's death, which occurred at 4 o'clock a. m., May 1. For five days before death patient had been in a semicomatose condition. He took little notice of his surroundings. Speech incoherent. Eyes sometimes rolling.

*Necropsy (held at 2 o'clock p. m., May 1).*—Body was large, strongly built, and in good condition. Lungs: Slightly oedematous-hypostatic congestion; Heart: Mitral valve thickened, showing evidences of chronic inflammation. Liver: Small and cirrhotic. Spleen: Very soft. Kidneys: Normal. Brain: The skull was very thick: the dura mater was very much thickened, showing on its inner surface evidences of inflammation; the space between the dura and pia was obliterated in parts by adhesion; the rest of the space was distended with serum. The brain weighed 1,430 grams. It was very much congested. No clots were found. The lateral ventricles were distended with serum, and the ependyma slightly congested.

### CASE 4.

P. J. W., age, 28 years; nativity, Norway; admitted to the U. S. Marine Hospital, San Francisco, Cal., July 8, 1890; died July 23, 1890.

*History.*—When admitted the patient complained of severe headache and vomiting. These symptoms had existed several days and continued for some time subsequently. The patient was quite restless, and laid a part of the time in a semicomatose condition, from which he would start with a cry and wild gesture, and when seemingly awake groaned almost continuously.

*Necropsy.*—When the vault of the cranium was removed the brain was found swollen, entirely filling the skull cavity. The dura mater was not markedly changed. Beneath the arachnoid could be seen a considerable quantity of fluid, distending that membrane in the sulci. At the base of the brain, the pia mater was opaque and presented in the region of the pons and medulla the yellowish appearance which indicates the presence of tubercle, but no miliary tubercles were detected. The lungs presented the usual hypostatic congestion; otherwise normal. The pericardial cavity contained about 30 cm<sup>3</sup> of pus. The pericardium was quite red, but not ulcerated. The heart was slightly enlarged; the

left ventricle greatly hypertrophied, its walls being about 4 cm thick. The kidneys were abnormally small, their capsules adherent. Their cut surfaces presented in the cortical portion small black spots, due, no doubt, to minute hemorrhages. The urine contained a small amount of albumen.

#### CASE 5.

H. F.; age, 42 years; sailor; native of New Jersey; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., on August 11, 1890; died August 22, 1890.

*History.*—Always enjoyed good health up to the beginning of his present sickness. Had had syphilis twelve or thirteen years ago. Said that he was taken, several days ago, with a severe chill followed by a high fever and sweating. Since then, he says, he has had a chill every day, and on his way to the hospital had a severe chill on the boat. He has night sweats, and his bowels are very loose. Complains of nausea, but does not vomit. Has constant and severe frontal headache. Physical examination disclosed pleuritic friction sounds, laterally, over both lungs. Patient's temperature continued to remain about  $39^{\circ}$ . From the 15th he continued comatose and with a high temperature (reaching  $42.1^{\circ}$  about three hours before death) up to the time of death.

*Necropsy (held August 23, 1890, about fifteen hours after death).*—Post-mortem lividity and *rigor mortis* were well marked and body was very well nourished. Left lung, old adhesion at apex. Pleurisy, and underneath it a metastatic abscess, which had probably given rise to the pleurisy. This was in the lower lobe. The upper lobe was in comparatively good condition and seat of hypostatic congestion. Right lung was the seat of pleurisy over metastatic abscesses and of lobular pneumonia. Abscesses of the pleura were found over lower and upper lobes. Middle lobe was congested. As in the left lung, the pleurisy was probably due to the abscesses. Heart appeared generally normal. Liver; old adhesions, enormously enlarged. It was found the seat of fatty infiltration, but not of fatty degeneration; otherwise it was in good condition. Spleen was of normal size, but very soft; has the appearance of an "infectious" spleen. Kidneys: Left was normal; right was normal. Intestines were normal. Stomach was normal. All the other viscera appeared normal. Over the right vertical portion of the frontal bone patient had shown mark of a blow, and this portion of the skull was found carious, extending right through to the inner table. Brain: The longitudinal sinus was found filled with pus. The under surface of the brain was covered with pus, and in some spots there appeared to be actual necrosis of brain tissue. On section the brain substance appeared in quite good condition. An abscess was found on the right inferior frontal lobe. The ventricles appeared normal. All the membranes were the seat of an acute suppurative meningitis. Spinal cord was not examined.

#### SPINAL MENINGITIS (CARIES OF SACRUM).

M. C.; age, 33; nativity, Austria; admitted to U. S. Marine Hospital, Stapleton, Staten Island, August 29, 1890; died September 3, 1890.

*History.*—Sudden and severe pain in left hip, followed by chill, high fever, and profuse perspiring. Bowels constipated. Tenderness over spine. Since entering the hospital the temperature has risen above  $39.5^{\circ}$  C. every day. There was stupor, paraplegia, anæsthesia, analgesia. Head was retracted. There was retention of urine and paralysis of lower bowel. Cathartics had no effect. He was poorly nourished. He suffered no pain and seemed perfectly rational. Before death temperature went above  $42^{\circ}$  C. The cold bath and antipyretics reduced temperature but little toward last. Blisters were applied to spine over cervical region.



*Necropsy.*—Thoracic cavity: Pericardium normal. Heart normal. Left pleura was entirely adherent. Right, pleura entirely adherent. Left lung, hypostatic congestion. Right lung, hypostatic congestion. Abdominal cavity: Liver adherent to diaphragm, enlarged and pultaceous. Spleen enlarged. Intestines normal. Kidneys normal. Cranial cavity: Brain normal. Spinal canal contained pus. Spinal pia mater inflamed around lower portion of cord. Sacrum carious, the sinuses of which passed into spinal canal.

#### ABSCESS OF BRAIN—HEMIPLEGIA.

F. R.; age, 42 years; nativity, Austria; was admitted to the marine ward of St. Vincent's Hospital, Norfolk, Va., December 19, 1890, and died January 1, 1891.

*History.*—On admission he was completely paralyzed on the left side of the body, including the face. The bladder and rectum were also involved. He was unable to talk distinctly, but it was learned that he had been taken sick while on the vessel, about eight days before, suddenly in the night, being seized with pain in the left arm and leg. This pain had subsided by morning, but there was total absence of feeling and motion in the affected limbs. The history was very unsatisfactory, as he was removed from his vessel in the night and none of his shipmates were afterwards seen. There were no external marks of injury on his body, but signs of syphilis in the past were not wanting. His condition did not improve under treatment, but his heart gradually failed and he died in twelve days.

*Necropsy (twenty-four hours after death).*—Body well nourished; height, 5 feet 8 inches; circumference at shoulder, 43 inches; pupils normal. Scars were found upon his shins and in his left groin. The skull was opened and brain removed. The brain membranes were thickened, adherent in many places, and congested. On the right side they were soft and easily torn. Upon the right side of the brain there was a cavity as large as a hen's egg, containing broken-down brain matter and pus, its walls very poorly defined and the brain tissue around it more or less involved in the destructive process. This cavity was wholly in the middle lobe of the right hemisphere. Its extent and the involvement of special parts of the brain could not be ascertained, as the condition of the tissues would not permit of an examination by sections. No gummata or tumors of any kind were found in the other portions of the brain. The thoracic and abdominal organs were inspected, but nothing abnormal was found, except in the case of the lungs, both of which were somewhat congested. No marks of syphilis were found in any of the internal organs.

#### SOFTENING OF BRAIN—WHITE.

M. E. C.; age, 40 years; nativity, Portugal; admitted the U. S. Marine Hospital at Port Townsend, Wash., July 29, 1890; died September 8, 1890.

*History.*—The Chilean bark *Sanova*, after a series of disasters, was finally wrecked near New Dungeness, about 20 miles below this port. One or two members of the crew were removed to the State insane asylum by the proper consular authorities, and this patient was transferred for hospital treatment, as being in a less violent condition. While only speaking the Spanish language, no lucid replies could be elicited from him in his native tongue. Shortly after leaving a South American port he was said to have had a sudden fall or stroke, from which he partially recovered. There was no paralysis of the limbs and the tongue was protruded naturally, but with some hesitation. Urine and fæces passed involuntarily. This condition continued until a short time before death, when some paralysis of the right side was noted.

*Necropsy.*—Upon removal of the calvarium the membranes were found to be somewhat adherent, and the left cerebral tissue whiter and softer than upon the

right side. Upon deeper section this side was found to contain a nucleus of white softening about the size of a hen's egg, with a small clot from a recent rupture of a small branch of the left middle cerebral artery, accounting for the late paralysis noticed upon the right side; other organs not examined.

A point of interest in this case appeared to be the demoralized mental condition of the crew of this old Chilean lumber vessel, whether due to deficient diet or maltreatment the writer was unable to ascertain.

#### ACUTE ASCENDING PARALYSIS.

O. R.; age, 32; born in Switzerland; admitted to the U. S. Marine Hospital, Chicago, Ill., November 15; died November 17, 1890.

*History.*—Patient entered hospital with complete amaurosis, which came on suddenly two days previously. He complained only of malaise and slight pain in the back of his head. During the summer he was employed as a deckhand. He stated that he had no sickness since his boyhood. The appearance of the patient indicated intemperate habits. No specific history could be traced. On the day following his admission to hospital he complained of tingling and minor sensory disturbances in his legs, combined with weakness. In a few hours both legs from the hips down were completely paralyzed. Paralysis of the bladder and rectum quickly followed. The bowels responded poorly to enemas and the bladder required catheterization. The paralysis rapidly spread upward, the accessory muscles of respiration becoming involved; speech became indistinct and swallowing difficult, showing involvement of the muscles of deglutition. There was no very marked sensory disturbance. Sensation seemed blunted and the recognition of pain retarded, but otherwise normal. There was no wasting of the muscles. The reflexes remained about normal. At one time a slight ankle clonus could be developed. No bed sores. The upper extremities were not involved. Patient did not at any time complain of pain. His mind remained clear until nine hours before death, which was preceded by a strong convulsion. The temperature remained elevated from the beginning, ranging between 39° and 41° C. The pulse was about 100 per minute, strong and full.

*Necropsy.*—The body well nourished; 5 feet 7 inches in height. Post-mortem lividity and *rigor mortis* both well marked. The heart seemed normal, the valves competent; weight, 400 grams. The left lung was engorged, weighing 610 grams. The right lung was congested and oedematous; weight, 980 grams. The pleural sacs were normal. Nothing abnormal was noted about the abdominal organs. The brain weighed 1,250 grams and seemed to the naked eye perfectly normal in all respects, likewise the scalp, the skull, and the membranes.

(Written up from notes taken on the case by Surg. F. W. Mead, Marine Hospital Service.)

#### EPILEPSY.

H. C.; age, 54 years; nativity, South Sea Islands; admitted to the U. S. Marine Hospital, Vineyard Haven, Mass., September 2, and died September 8, 1890.

*History.*—Patient was of French parentage, born in the Pacific Ocean, and had always had good health, excepting an attack of syphilis about ten years since, and other venereal diseases. Beyond this nothing could be elicited owing to the mental condition of the patient. He was admitted with a history of "fits" and "heart disease," and shortly after his entry, while in the bath tub, he had an epileptiform convulsion. Physical inspection revealed general oedema of the lower extremities, cyanotic hue about neck and face, and some indications of dyspnoea. He began to explain about his convulsions, which first began by contractions of the flexors of thumb, fingers, and hand in order, which he illustrated,



and then followed a genuine epileptiform seizure, showing in turn the spasmodic action of the cervical muscles of the left side, terminating in general violent muscular action of the whole system, rapid respiration, and the subsequent stertorous breathing and torpor after its conclusion. The patient was apparently able to start a bona fide seizure every time he began to explain the manner of their inception. The lungs gave normal sound upon examination and a slight aortic murmur was noted upon cardiac auscultation. Treatment was rest in bed, Fowler's solution, and iodide of potash in alternate doses of the usual amounts, but no appreciable modification of the disease could be seen. The convulsions continued with increasing frequency and severity, and on the seventh day he died in a spasm at 10:30 p. m.

*Necropsy (sixteen hours after death).*—The brain was the special object of attention in the necropsy, and much time was given to its careful examination in detail. The writer expected to find a growth involving the thumb center in the cortex, but nothing was revealed macroscopically to indicate any morbid condition to account for the epileptiform seizures. Only in the arachnoid, along the line of the longitudinal commissure, there appeared some evidences of an old inflammatory deposit, and the membrane was slightly adherent to the convolutions beneath. The heart weighed 741 grams, being hypertrophic, pale, and fatty. The valves appeared normal, except the aortic, which was slightly thickened and rough. Other organs normal. As the writer seriously considered trephining for the removal of a supposed cerebral growth, the results would not have been brilliant in view of the negative character of the necropsy.

#### EPILEPTIC INSANITY.—MONOMANIA.

N. M.; age, 50 years; nativity, Austria; was transferred by the U. S. Marine Hospital service at New Orleans, La., to the Louisiana Retreat, December 9, 1889, and died December 25, 1890.

*History.*—Unsatisfactory prior to admission, being mainly his admission to hospital a week previously with rheumatism. He immediately became noisy and troublesome, his nervous disorder becoming apparent, and was transferred to a hospital devoted to such cases. He was frequently much excited, noisy and beligerent, requiring frequent use of restraint. He failed slowly and died of exhaustion.

*Necropsy (thirty-one hours after death).*—Body that of a muscular white man, extremely emaciated. *Rigor mortis* well marked. Abdomen and dependent parts much discolored. Heart, weight 210 grams; valves normal. Liver, 1,360 grams. Left kidney, 165 grams; right kidney, 170 grams. Spleen, 155 grams. Thoracic and abdominal contents apparently normal except notably devoid of fat. Brain, membranes much congested. Brain weight, 1,300 grams; congested and softened; both convolutions of the longitudinal fissure presenting at their summits well-defined patches of syphilitic deposit, 3 cm. in length antero-posteriorly, and 0.5 in cm. width. The pia and dura mater were closely adherent in this situation to the cerebral substance and skull, and corresponding depressions noted on inner table of the latter.

#### ENDOCARDITIS.

##### CASE 1.

W. S.; age, 26; nativity, Norway; was admitted to the U. S. Marine Hospital, Chelsea, Mass., June 11, and died July 2, 1890.

*History.*—Patient's chief complaint was from dyspnoea, which during the last week of his life was very distressing on account of the loss of compensation of the

heart. The right ventricle became considerably dilated, with insufficiency of tricuspid valves. Purpuric spots appeared over his body after this dilatation occurred, due to deficient circulation, and endocarditis was diagnosed. On auscultation a loud systolic murmur was heard over mitral and aortic valves and heart was much hypertrophied.

*Necropsy.*—Body well nourished; slight general œdema. Numerous purpuric spots on body. Pericardium normal. Heart enlarged, weight 560 grams. Right ventricle considerably dilated. Tricuspid opening enlarged, admitting four fingers easily. Mitral orifice also larger than normal, admitting three fingers. Valves insufficient. Aortic valves showed signs of recent endocarditis; one cusp had a large fleshy mole attached, of recent formation, and there were three limited spots of inflamed endocardium just below the valves. The cusp, with growth on it, also had a band of new tissue connecting the valve with the endothelium of the aorta. This band was long enough to permit the complete closure of the cusps. Another cusp had a perforation at its center about 3 mm. long by 2 mm. wide; this was of old formation. The cusp was of great size and was very much thickened, its length was 3 c. m. and the sinus above it was correspondingly enlarged. The third flap was normal. The lungs showed diffuse bronchitis and œdema. Other organs normal.

#### CASE 2.

E. L.; age, 21 years; nativity, Pennsylvania; admitted to U. S. Marine Hospital, Baltimore, Md., October 29, 1890, and died December 2, 1890.

*History.*—Stated that a few days previous to admission he had fallen from the rail to deck of vessel and sustained a sprain of left ankle joint. On admission his general health was good. Left ankle somewhat swollen and ecchymotic, especially under and around external malleolus. There being no evidence of fracture near seat of injury, the case was diagnosed and treated for sprain of ankle. In a week the patient was out of bed and apparently on the road to complete recovery. On the evening of November 10 he complained of severe burning pain in his right foot and leg. Temperature  $39.8^{\circ}\text{C}$ ., pulse 105. A brisk cathartic, followed by full doses of quinine, abated this attack until the evening of the 15th, when his temperature again arose to  $39^{\circ}\text{C}$ ., and pulse to 96, and he complained of pain in both legs. Examination showed both feet and legs were somewhat swollen and ecchymotic nearly to the knees, and careful examination failed to reveal any pulsation in either the posterior or anterior tibial arteries. The impulse of the heart's action in the left femoral artery was markedly exaggerated. In the right leg no pulsation could be discovered in any of the vessels below Poupart's ligament. Both legs were abnormally cold. The condition was, therefore, recognized as embolism of right external iliac and left popliteal arteries. Subsequently, probably by the establishment of the collateral circulation, the left foot and leg improved materially, but the right leg and foot gradually became blackened and gangrenous.

In view of the locality of the obstruction to the circulation in the right leg, external iliac artery, it was not deemed advisable to amputate the leg or otherwise interfere with the case surgically. The treatment, therefore, was simply palliative until death put an end to his sufferings.

*Necropsy (ten hours after death).*—*Rigor mortis* moderately developed. Right leg and foot darkly discolored and ends of all toes black and shriveled. Brain not examined. Pericardium contained about 100 c. c. straw-colored fluid. Heart normal in size and firmness; aorta undersized and stenotic; aortic valves thickened; rough fleshy masses. Mitral valves insufficient but otherwise normal. A fibrinous clot was entangled among the chorda tendinæ of the right ventricle and



branched off into the pulmonary artery. Lungs normal. Liver, beyond a condition of passive hyperæmia, was normal. Spleen of a dark reddish color and contained several hæmorrhagic infarcts; two very large ones, separated by a small strip of softened spleen substance, covered nearly one-half of the convex surface. Kidney undulating from numerous hæmorrhagic infarcts, some of which were of large size extending into the pyramidal portion.

The small intestine throughout exhibited many black spots, due probably to hæmorrhagic infarcts. In some of these the mucous membrane was wanting.

The left external iliac artery was occluded by an embolus about the size of a pea, by the side of which was a thrombus, of a dark color, completely occluding its lumen. A thrombus of the same nature, and possibly a part of the first just described, plugged the orifice of the left internal iliac. The condition of the right leg and foot was due, in all probability, to occlusion of the right popliteal artery, but want of time prevented a demonstration of that fact.

### CASE 3.

I. W.; age, 23 years; native of New York; admitted to U. S. Marine Hospital, Port Townsend, Wash., August 25, 1890, in a dying condition; death occurred two hours later.

*History.*—But little if any history could be obtained from this patient. He had left his vessel upon the lakes and journeyed by rail to Puget Sound, Washington, sick upon the cars for a number of days without medical aid, to this port. Diagnosis hardly possible, but necropsy verified an extensive ulcerative endocarditis with the inference of its being secondary to an acute attack of rheumatic fever, without treatment. The mitral valve was destroyed, and immediate cause of death from heart failure, caused by his transportation and exposure.

Dr. L. Y. Seavey, health officer, kindly assisted in the autopsy of this interesting case.

### VALVULAR DISEASE OF HEART.

#### CASE 1.

E. P. B.; age, 59; nativity, Connecticut; admitted to Marine Hospital, New York, March 20, 1890; died July 5, 1890.

*History.*—Gave no history of heart symptoms three weeks previous to admission, at which time he began to suffer from dyspnœa, palpitation, slight cough, and a gradually ascending anasarca of feet, legs, thighs, and abdomen. Physical examination showed a mitral regurgitant murmur. Improved under cardiac stimulants. Discharged April 21. Returned May 1. Has grown worse. An aortic obstructive murmur heard in addition to the mitral regurgitant. Dyspnœa and anasarca increasing.

*May 23.*—Physical examination shows flatness over entire right chest, distant breathing, absent fremitus, hydrothorax.

*Necropsy (forty-eight hours post-mortem).*—Decomposition beginning in abdominal walls and arms. Marked œdema of legs, trunk, and arms. Right pleural cavity full of serous fluid (about 1,000 c. c.). Right lung much compressed; hypostatic congestion: sodden. Left lung same as right, only small amount of fluid in pleural cavity. Heart is very much enlarged, dilatation of both ventricles; more marked in left ventricle; eccentric hypertrophy; aortic semilunar valves thickened on edges; atheromatous degeneration amounting to pyriform aneurism of aorta; numerous calcareous plaques; fatty degeneration of muscular walls. Liver: Enlarged and fatty, with chronic interstitial hepatitis. Spleen, small; otherwise negative. Left kidney: Large, white, full of cysts; one size of egg; cirrhotic. Right kidney: Large, cystic, and affected by amyloid degeneration. Brain and cord not examined.

## CASE 2.

R. J.; age, 25; nativity, New Brunswick; was admitted to the U. S. Marine Hospital, Chelsea, Mass., July 21, and died July 26, 1890.

*History.*—On examination of his heart mitral and tricuspid regurgitant murmurs were heard, also aortic regurgitant and obstructive murmurs. Pulmonary valve normal. Heart greatly hypertrophied and pleurisy was developed on right side. General oedema was present and cyanosis marked. Digitalis, strophanthus, and caffeine were given with temporary benefit. He also received drop doses of a 1 per cent solution of nitroglycerin, which seemed to give slight relief.

*Necropsy (twelve hours after death).*—General anasarca present. Body well nourished. Heart enormously enlarged, weight 1,000 g. Pericardium normal. Mitral valves greatly thickened and incompetent with several vegetations on edges; orifice slightly contracted; aortic valves also thickened and rigid; orifice contracted; incompetent. Tricuspid cusps tremendously thickened, with vegetation on margins; orifice admitting four fingers easily; marked incompetency. Right ventricle much dilated, with hypertrophied walls. Pulmonary valves normal. Pleura over right lung showed signs of recent inflammation, with a small effusion of serum in its cavity.

## CASE 3.

W. R. C.; age, 31 years; nativity, Connecticut; admitted to U. S. Marine Hospital, New Orleans, La., May 3; died July 1, 1890.

*History.*—Patient felt very well on admission, except that he had shortness of breath. Appetite and digestion good. Both legs oedematous; ascites. Had rheumatism three and one-half years ago; four weeks previously swelling of legs and abdomen noticed. Examination of heart reveals murmurs over all the valves. On 28th of May his abdomen was tapped between pubes and umbilicus 7,000 c. c. of liquid withdrawn. The disease was steadily progressive from bad to worse, and patient sank rapidly.

*Necropsy (twenty-six hours after death).*—Body that of a young white man, much emaciated. Abdomen distended; hypostatic congestion and *rigor mortis* marked. The pleural cavities were filled with serum. The left lung was firmly attached to the thoracic walls by pleuritic adhesions. The lung tissue was congested and hepatized. The right lung was attached at the apex only. Its tissue was hepatized like that of left lung. Both lungs showed beginning of tubercular deposits. The pericardial sac contained serous fluid. The heart was enlarged and flabby. The aortic valves were incompetent and almost obliterated. The mitral valves were likewise incompetent. The heart walls were thin. The abdomen was distended with serum. The liver was cirrhotic, showing syphilitic deposits; weight, 1,600 grams. The spleen was enlarged, mottled, and softened. The left kidney was congested, showing beginning of fatty degeneration. The right kidney was apparently floating; its tissue resembled that of the left kidney. The intestines and stomach were congested throughout.

## CASE 4.

F. G.; age, 48 years; nativity, Austria; admitted to the Marine Hospital, Stapleton, N. Y., June 4, 1891; died June 17, 1891.

*History.*—Patient stated on admittance to the hospital that two weeks before he had been suddenly seized with a very severe pain in the chest, about the center of the sternum, at the fourth or fifth intercostal space. This was so severe as to cause him to give up his work. Prior to this attack he had at intervals suffered from dyspnoea, which was exaggerated on exertion. He also complained



of pain in the epigastrium. He gave no history of either tubercle, rheumatism, or syphilis. Had lost considerable weight within the last two weeks. Physical examination showed lungs to be normal; no relative increase in size of heart, but there was an aortic regurgitant murmur. The area of splenic dullness greatly increased. Heart at times acted very forcibly, the apex beat displaced towards the right. Pulse at times showed a marked increase in arterial tension, and the pulsation of the arteries of the neck very perceptible. The respirations were often very labored. When admitted to the hospital his temperature was normal: on June 6, it was 38.1° C.; on June 16, 39.2° C, the highest point reached at any time. He died on date above given.

*Necropsy (twenty-four hours after death).*—Body fairly well nourished; *rigor mortis* not well marked. Lungs: Both lungs showed congestion, especially marked in their lower portions. Heart: Pericardium contains about 125 cm<sup>3</sup> of fluid. Heart muscle pale and flabby; both ventricles dilated and their walls thin. Aortic valves incompetent; calcareous deposits; these deposits extend far up into aorta. Mitral valves also incompetent. Liver was somewhat small, exterior pale, substance pulpy, “nutmeg” appearance on section. Spleen: Soft, enormously enlarged, nearly as large as liver and very pulpy. Peritoneal cavity contained considerable fluid. A greenish deposit of lymph on omentum which gave to it a gangrenous appearance. This same condition was seen on mucous membrane of stomach. Kidneys pale; capsules nonadherent; cortical portion thin. Brain not examined.

#### CASE 5.

P. O'H.; age, 35 years; nativity, Chile; admitted to U. S. Marine Hospital, San Francisco, Cal., March 4, 1891; died April 20, 1891.

*History.*—Three or four months previous to admission patient noticed shortness of breath upon slight exertion; there was next puffiness under the eyelids; soon thereafter enlargement of the abdomen; then the feet and ankles became swollen. There was dyspnoea, weak pulse, rapid and irregular. Urine contained no albumen. Area of cardiac dullness increased and there were anæmic murmurs to be heard over the whole of this area. There was well-marked ascites.

*Necropsy.*—The general nourishment was fair; *rigor mortis* well marked. The valves of the heart were evidently normal, but the whole heart was exceedingly flabby and somewhat dilated; 660 grams. Left lung atrophied, weighing only 680 grams, while the right weighed 1,330 grams. Both these organs were congested. Spleen weighed 120 grams. The liver weighed 1,450 grams. It was contracted from increase of connective tissue and presented a nutmeg appearance. The kidneys were both atrophied, especially the cortical portion, being the small red kidney with granular surface. The left weighed 110 grams and the right 120 grams.

#### CASE 6.

M. O.; age, 45 years; nativity, Sweden; admitted to the U. S. Marine Hospital, San Francisco, Cal., January 14, 1891; died January 20, 1891.

*History.*—This patient when first seen was suffering from difficult breathing and at times was delirious. On examination the cardiac dullness was very much increased and a murmur detected over both valves.

*Necropsy.*—*Rigor mortis* only partial. Body fairly well nourished; cavities of heart dilated and walls hypertrophied; weight 880.9 g. Both the aortic and mitral valves were incompetent and thickened, but not rough. Lungs slightly congested and the bronchi filled with mucus.

## CASE 7.

C. J.; age, 25 years; nativity, Sweden; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., March 16, 1891, and died May 4, 1891.

*History.*—He had suffered at various times during the last two years, his most marked symptoms being sharp pains under the lower edge of the sternum and difficult breathing. When admitted he was considerably emaciated, his face pinched, and lips and finger tips blue. An examination revealed a valvular insufficiency of the heart, a well-marked bruit being distinctly heard during the first sound and also following it. This was heard most distinctly behind the sternum, and below behind the stomach, and not at all clearly at the apex of the heart. For a short time this dyspnoea and pain were relieved by frequent doses of digitalis, but that and other drugs soon failed and he grew worse. There was never much dropsy.

*Necropsy (twenty hours after death).*—*Rigor mortis* not marked; body emaciated; height, 5 feet 9 inches; circumference at shoulder, 38 inches; face much cyanosed. Both lungs much congested and tubes filled with frothy secretion. Heart enlarged; left ventricle much thickened; mitral valve very rigid and insufficient, much calcareous deposit destroying its usefulness. Aortic valve in the same condition and aorta much dilated behind the valve. Heart weighed 350 grams. Liver enlarged and congested; weight, 3,200 grams. Peritoneal cavity held about 1,000 c. c. of fluid. The spleen was the seat of a passive congestion and was enlarged, weighing 375 grams. Both kidneys were likewise similarly affected, and weighed, the left 225 grams, and the right 215 grams.

## CASE 8.

E. M.; age, 32 years; United States; was admitted to the marine ward of the Sisters' Hospital, Buffalo, N. Y., April 29, 1891; died June 3, 1891.

*History.*—This patient gave a history of continued liquor-drinking and complained of a severe pain over mediastinum; was expectorating large quantities of mucopurulent matter; also vomited occasionally; had internal hæmorrhoids. About a week before death ascites developed and urine became scanty. The day of his death there was more or less coma.

*Necropsy.*—*Rigor mortis* not well marked. Abdomen distended. Upon being opened fluid escaped. Gastro-intestinal tract congested; stomach dilated, deeply congested, and filled with grumous blood. Liver cirrhotic, of a gray color, and weighed 2,500 grams. The gall-bladder was found empty and the duct occluded. Pancreas weighed 1.50 grams. Each kidney weighed 200 grams, and pus was found in the pelvis of the right kidney. The spleen was weighed and found to balance at 2,000 grams. Both ventricles of the heart were found to be dilated; the mitral and tricuspid valves were incompetent. The heart weighed, after opening, 1,000 grams.

## CASE 9.

*Parenchymatous Nephritis.*

G. M. L.; age, 40 years; nativity, Scotland; admitted to marine ward, Jefferson Hospital, Philadelphia, Pa., February 11, 1891; died February 26, 1891.

*History.*—On admission he was suffering with difficulty of breathing, palpitation of heart, and loss of appetite. He had marked oedema of lower extremities; also slight ascites. On admission he passed 414 c. c. of urine daily, which increased under treatment to 1,141 c. c. The urine was amber color, acid in reaction, and had a specific gravity of 1.018; it showed a slight trace of albumen. There was a mitral systolic murmur also, and a diminished area of liver dullness.



The temperature remained subnormal throughout the disease. He was placed on light diet, diuretics, and stimulants.

*Necropsy.*—The abdominal cavity contained a small amount of fluid, and there were signs of recent and old peritonitis. The heart was completely relaxed, and weighed 520 grams; the left ventricle was very much enlarged; there was stenosis of the aortic opening, also dilatation of the left auriculo-ventricular opening. The liver was contracted, granular, the edges rounded, and weighed 1,120 grams. The right kidney weighed 200 grams, and it showed signs of parenchymatous nephritis. The left kidney was very much contracted; the capsule was adherent; weight, including the capsule, was 80 grams.

#### CASE 10.

G. H. H.; age 26 years; nativity, New York; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., February 3, 1891; died May 14, 1891.

*History.*—Patient stated that he had rheumatic fever six years previous to admission, had gonorrhea several times afterwards. Two months previous to admission was taken with severe pain in cardiac region, also pain in left shoulder joint. He said that he had difficulty in breathing and palpitation of heart on slight exertion. Physical examination revealed the following condition: A blowing murmur was heard over apex beat; murmur replacing first sound of heart and transmitted to axilla. A blowing murmur was also heard over second intercostal space to the right of the sternum, murmur replacing second sound of the heart, and transmitted to the apex. Patient left hospital March 19, saying that he “felt very much improved,” and returned March 28, much worse, his face and legs were oedematous. He sank rapidly, dying on date above stated.

*Necropsy (twelve hours after death).*—*Rigor mortis* marked. Post-mortem lividity well marked. Body well nourished. A large quantity of bloody serum in thoracic cavity. Lungs congested; otherwise normal. Heart enormously enlarged; all the chambers of the heart were dilated. Aortic valves were atheromatous, thickened, and insufficient. Calcareous deposit on the mitral valves, which were also thickened and insufficient. Liver enlarged and nutmeg appearance on section. Spleen normal in size, very hard on section, and fibrous. Kidneys enlarged; capsules nonadherent, apparently normal on section.

#### CASE 11.

J. B. (colored), aged 62, a native of Kentucky, was admitted to the Marine Hospital, St. Louis, Mo., January 17, 1891; died May 25, 1891.

*History.*—His only complaint was dyspnœa and some pains in the joints, which moved about from one joint to another. There was a loud diastolic murmur over both aortic and mitral valves. He improved, and was at his request discharged February 8 to do light work. He was readmitted April 14, 1891. Urgent dyspnœa; feet and legs much swollen. He was restless and did not sleep. Sulfonæ 1.2 gave sleep. There was a loud diastolic murmur over both aortic and mitral orifices.

*Necropsy.*—Heart dilated and hypertrophied. Tricuspid orifice admits four fingers with rubber gloves on, aortic admits three with gloves, and mitral three with gloves. Aortic valves incompetent; water runs straight through. Atheromatous changes in intima of aorta.

## CASE 12.

*Pneumonia—Lobar.*

M. R.; age, 28 years; nativity, Ireland; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., March 25, 1891; died, April 13, 1891.

*History.*—Patient stated that 10 years previous to admission he had rheumatism; had palpitation of heart and difficulty in breathing since having rheumatism. He said that his appetite was good; bowels regular, but slept badly. Physical signs: A blowing murmur was heard over apex of heart, replacing first sound of heart; murmur transmitted to side. April 10, patient's temperature went up to 40.8° C.; respiration and pulse accelerated; auscultation revealed crepitantrâles over left lower lobe; dullness on percussion; patient expectorating large quantity of sputum, brick-dust hue. He grew worse rapidly, dying on date above given.

Post-mortem examination made.

*Necropsy (five hours after death).*—*Rigor mortis* slight; post-mortem lividity on back and buttocks; body well nourished; pericardium thickened; heart filled with ante-mortem and post-mortem clots; the heart was also very much enlarged, the walls thickened, and fatty degeneration was apparent; aortic valves thickened and insufficient; the mitral valves thickened and covered with atheromatous nodules; the curtains almost destroyed; left lung hyperæmic; fibrinous deposit at internal part of left upper lobe; lower lobe hepatized; right lung mottled and congested; liver enlarged, slate-gray color on section, nutmeg in appearance; external part of right lobe was friable; spleen enlarged and less firm than normal; left kidney contracted; capsule adherent; cortex thinned; same condition found in right kidney; stomach distended. Other organs not examined.

## CASE 13.

T. W.; age, 52 years; nativity, Michigan; admitted to U. S. Marine Hospital, Wilmington, N. C., January 24, 1887; died November 22, 1890.

*History.*—When first seen by the writer, in December, 1888, he was in fair condition; the aortic trouble was compensated by hypertrophy of the left ventricle, and he could go about with ease, suffering from dyspnœa only when going up stairs or walking quickly, and at times from more severe attacks, which were readily relieved by caffeine. In a short time slight swelling was noticed in the ankles at night, and his movements were soon confined to the ward and adjacent veranda. On March 3, 1890, he had an attack which was diagnosed as embolism of the left middle cerebral artery, in which he fell to the floor of the veranda and was taken up unconscious. In a short time right hemiplegia, marked aphasia, and disturbance of vision developed. He was confined to bed for a period of about three months, when the hemiplegia improved, but the aphasia remained as before, and the power of reading was never regained. He continued in this condition, with occasional attacks of dyspnœa, until the morning of November 22, 1890, when he died during a severe attack.

*Necropsy.*—External appearances: Height, 1.68 m. Circumference at shoulders, 14.6 m. Post-mortem lividity present. *Rigor mortis* absent. General nourishment fair. Pupils contracted. Circulatory organs: Heart much enlarged; weight after opening, 885 grams. Milky patches on parietal and visceral layers of pericardium and slight increase in quantity of pericardial fluid; aortic valve incompetent; segments beady and thickened. Mitral incompetent; vegetations on free edges. Pulmonary valve competent. Tricuspid incompetent. Left ventricle hypertrophied and dilated; thickness of wall, 1.25 cm. Right ventricle dilated; thickness of wall .625 cm., fatty. Aorta thoracic atheromatous; great dilation of ascend-



ing and tranverse portions aneurismal. Aorta abdominal atheromatous. Other arteries and veins: Arteries generally atheromatous; veins much distended. Lungs and pleuræ: Adhesions on both sides; no effusion. Both lungs much congested, otherwise healthy; weight, right, 951 grams, left, 798 grams. Abdomen, contents: Peritoneum and gastro-intestinal tract normal. Diameter of pylorus 2.5 cm.; cardiac orifice, 1.875 cm. Liver shows slight fibroid change; color is light brown; weight is 1,340 grams; gall bladder and ducts are normal; pancreas normal; weight, 93 grams. Genito-urinary organs: Kidneys (left), fibroid; two cysts in cortex; much contracted; weight, 75 grams (right), fairly healthy; cortical structure increased; weight, 140 grams; pelvis and ureters, bladder, urethra, and prostate, normal. Suprarenal bodies normal; weight, left, 8 grams, right, 5 grams. Spleen: Very small for a resident of this region; weight, 141.8 grams. Nervous system: Scalp and skull normal; pia mater congested in patches over right cortex. Brain: Large area of softening noted in lateral and inferior regions of anterior and middle lobes of left lateral half of cerebrum, including fissure of Sylvius and lower portion of Rolandic fissure. The middle cerebral artery on the left side contained a large embolic plug; weight of brain, 1,103 grams. Spinal cord and other organs, with exceptions noted, were normal.

## CASE 14.

F. P.; age, 27 years; nativity, Germany; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., October 28, 1891. Died February 16, 1891.

*History.*—Patient stated that he had rheumatism during the summer previous to admission. One month previous to admission he contracted a severe cold followed by cough and slight expectoration. He stated that he had difficulty in breathing but did not know at what time he first noticed it; appetite good, bowels regular, sleeps badly. On physical examination the following condition was found: Auscultation revealed a blowing murmur at second right costal cartilage, replacing the second sound, murmur transmitted to the apex. A blowing murmur was heard at apex replacing the first sound, murmur transmitted to the angle of the scapula. Moist râles were heard over chest anteriorly and posteriorly.

Patient grew worse gradually, dying suddenly on the date above stated.

*Necropsy (forty-two hours after death).*—*Rigor mortis* marked. Post-mortem lividity well marked. Body well nourished. Heart examined, pericardial sac completely filled with fluid; heart enormously enlarged. The upper portion of inferior vena cava filled with ante-mortem clot. Aortic valve insufficient, and atheromatous. Pulmonary valves sufficient. Mitral, aortic, and tricuspid valves were covered with vegetations, and were insufficient. Left ventricle concentrically hypertrophied. Right ventricle dilated. Lungs examined, left lung congested, otherwise normal. Right lung, anterior adhesions, fibrinous deposit on anterior surface; on section frothy mucus exuded, evidences of circumscribed bronchitis. Liver examined, enormously enlarged; was congested, dark and mottled with nutmeg appearance. Gall bladder fully distended. Spleen examined, was about five times the normal size; numerous sulci on anterior border, also evidences of an old impact, and was pultacious. Left kidney examined, was slightly hypertrophied, capsule nonadherent, otherwise normal. Right kidney examined, capsule nonadherent, slightly hypertrophied, otherwise normal.

## CASE 15.

A. K.; aged 48 years; nativity, Germany; admitted to the U. S. Marine Hospital, San Francisco, Cal., January 13, 1891; died January 19, 1891.

*History.*—This patient had been under treatment in the hospital at several different times, suffering from valvular disease of the heart, both valves being

affected. The usual symptoms of compensatory failure were present, viz: Shortness of breath, blueness of lips and nails, oedema of feet, etc. He would improve somewhat, and then request to be discharged. When last admitted all of his symptoms had increased in severity, and he only lived a few days.

*Necropsy.*—*Rigor mortis* not well marked; body fairly well nourished; cavities of heart dilated, with only slight hypertrophy; weight, 800 grams; both valves aortic and mitral incompetent, thickened and rough, especially was this the case with the aortic valve. Both lungs congested. Liver cirrhotic.

#### CASE 16.

R. J.; aged 53 years; nativity, Norway; admitted to U. S. Marine Hospital, San Francisco, Cal., January 29, 1891; died January 31, 1891.

*History.*—This patient was in a very critical condition when admitted, his principal symptom being difficult breathing. On examination an aortic and mitral murmur was detected, and the area of cardiac dullness was very much increased.

*Necropsy.*—A small amount of a straw-colored fluid was found in abdominal cavity. Heart very much enlarged and fatty; the cavities of both sides dilated, walls slightly hypertrophied; aortic and mitral valves diseased, being roughened and incompetent. A small quantity of fluid in pericardial sac. Lungs slightly congested. Kidneys somewhat enlarged, spleen atrophied. Liver seemed to be normal.

#### CASE 17.

A. P.; age, 24 years; nativity, Virginia; admitted at the U. S. Marine Hospital at New Orleans, La., May 31, 1891; died June 7, 1891.

*History.*—The patient was transferred from the Shreveport (La.) Marine Hospital to New Orleans by boat, being some little time on the trip, and on arriving at the latter hospital was in very bad condition. He dated the beginning of his sickness from the previous autumn, when, he said, he first felt shortness of breath. He had been having recently great dyspnoea, with cough and bloody expectoration. The physical signs indicated incompetency of all the valves of the heart and stenosis of the aortic valve, with cardiac hypertrophy and pulmonary congestion. His condition was rendered easier for the few remaining days that life lasted, and death was comparatively sudden.

*Necropsy (twenty hours after death).*—Body that of a fairly muscular, full-blood negro. Height 165 cm.; circumference at shoulders 105 cm. *Rigor mortis* not well marked. General nourishment good. Pupils moderately dilated. The heart weighed 725 grams, was hypertrophied and flabby. The pericardial sac contained a small quantity of serous fluid. All the valves of the heart were incompetent. The aortic semilunar valves were greatly thickened and retracted, and the cusps of the mitral valve were moderately thickened along their borders. There were no calcareous deposits either on the valves or in the aorta. The arch of the aorta contained patches where the walls were thickened and softened. The lungs, examined in situ, were found congested, but otherwise healthy.

#### CASE 18.

K. H.; age, 26 years; nativity, Norway; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., June 12, 1891, and died June 12, 1891.

*History.*—The patient had been previously admitted to the hospital, July 17, 1890, for cerebral hemorrhage, and was discharged May 5, 1891, improved. When first admitted, in July, 1890, the patient stated he had been seized three or four days previously with a pain in right arm and leg. At time of admission the pain was so severe that it prevented sleep. Physical examination: He gives a specific and rheumatic history, and also has now gonorrhoea and orchitis; the



heart is rapid and very irregular; no murmur audible; the pulse soft and compressible; lungs filled with sonorous, sibilant, and mucous râles; reflexes exaggerated; the skin hyperæsthetic though transmission delayed; tongue deviates to the right; the pupils contracted but respond to light; glands enlarged; bladder and rectum apparently normal. He improved very slowly, and was discharged May 5. When brought to the hospital, June 12, 1891, he was in *articulo mortis* and died two hours later. No history could therefore be obtained.

*Necropsy (sixteen hours after death.)*—Body well nourished; *rigor mortis* well marked; hypostatic congestion posteriorly; scars on arm indicative of rupia; both lungs adherent to chest wall; bases, apices, and posterior surfaces intensely congested and œdematous; right lung in state of hepatization with frothy exudate on pressing the incised surface. Heart: Pericardium congested; heart very much enlarged and in diastole; both cavities contained post-mortem clots; both ventricle walls thin, and the muscle pale; the cavities dilated; tricuspid valves atheromatous and roughened with vegetations; aorta much enlarged and dilated; The semilunar valves greatly thickened, covered with vegetations along the margins; liver external appearance mottled, nutmeg on section; kidneys were apparently normal.

Brain not examined.

#### CASE 19.

H. W.; age, 39 years; native of Maryland; was admitted to the marine ward of the Evansville City Hospital May 8, 1891; died next day, May 9.

*History.*—Patient had been suffering with valvular disease of the heart, aortic stenosis, and mitral insufficiency, for two years. He also had a large scrotal hernia, which was cured by operation February 17, 1891. After recovery he returned to light work, but shortness of breath increased and about three weeks before admission to hospital he applied at the office for relief on account of swelling of the feet, legs, and abdomen. When brought into hospital he was extremely weak. The heart's action was feeble; dyspnœa, anasarca, and œdema of the lungs were present, with slight cough and expectoration of frothy, bloody mucus. In spite of stimulants, local and general, he died the day after admission from œdema of the lungs and heart failure.

*Necropsy.*—Cadaveric rigidity marked; body swollen all over; in left inguinal region, a scar indicating the incision for cure of the hernia. On opening the chest the lungs were found swollen and œdematous. There was a little more than the normal amount of pleural fluid. The heart was hypertrophied and dilated, and was about 50 per cent larger than the normal heart. The aortic opening was the seat of deposits of a bony character, one of which was half a centimeter square, involving especially one of the sinuses of Valsalva, and producing considerable narrowing of the orifice. On one leaf of the mitral valve was found a thickened rough deposit, which rendered this valve incompetent. The left ventricle was much hypertrophied and the cavity dilated. The liver and kidneys appeared normal. The spleen was remarkably small, being about the size of a hen's egg, and was tough and resistant, seeming to be composed mainly of fibrous tissue. The site of the former hernia was dissected. The scar was apparent in the skin and superficial fascia, but no sign of the hernial sac having been amputated could be found, the tissues being smooth with no tendency to bulge. The inguinal canal was very narrow and the rings barely admitted the tip of the little finger, but the space seemed sufficient to accommodate the spermatic cord.

## CASE 20.

A. C.; age, 35 years; nativity, New York; admitted to the U. S. Marine Hospital, San Francisco, Cal., May 7, 1891; died May 29, 1891.

*History.*—The patient suffered from dyspnoea and palpitation, being unable to rest in a recumbent posture. There were valvular murmurs heard over the apex and upper portion of the chest and attributed to disease of the mitral and aortic valves. There was a difference in the volume of the radial pulse. During the last few days there was extensive oedema of the lower extremities.

*Necropsy (May 30, 1891).*—*Rigor mortis* well marked; lividity shown on dorsal surface; general nourishment good. The heart was enlarged, weighing 800 grams. The pericardial sac contained an excess of fluid. The mitral and aortic valves were insufficient from a moderate amount of fibrinous deposit. The wall of the left ventricle was slightly hypertrophied and the cavities of the heart were considerably dilated. The thoracic aorta was slightly dilated, sacculated, and atheromatous. The pleural cavities contained a considerable amount of fluid. There were recent adhesions at the apices of either lung and also at the central portion of the right. The lungs were colored from passive congestion; weight of right, 1,000 grams; left, 1,020 grams. The kidneys were enlarged with "pig-back" appearance found in alcoholic subjects; weight, right, 195 grams; left, 200 grams. The liver was somewhat contracted, its cut surface of a nutmeg appearance; weight of spleen, 260 grams.

## CASE 21.

G. W. C.; age, 56 years; nativity, Maine; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., August 3, 1890; died September 16, 1890.

*History.*—He had been exposed and injured in a shipwreck some months previous to his admission, and had been treated in hospital. He was very weak; not emaciated; had considerable difficulty in breathing, and could not sleep except in an upright position. At times complained of great pain under the sternum and in the chest to the left of that bone. Before his death his legs below the knees were considerably swollen, and there were evidences of dropsy in other parts of the body. He had several periods of unconsciousness before his death, from which he was with difficulty aroused. He died suddenly after some slight exertion.

*Necropsy (twenty-four hours after death).*—Body somewhat swollen, especially the lower extremities. The right side was bruised from a fall just before death. Upon opening the chest, the pericardium and pleural cavities were found to contain considerable fluid. The heart was much larger than normal, and the muscular tissue of the left ventricle was greatly thickened. The valves of the right side were found to be in good condition, and the right ventricle contained a small blood clot. The mitral valve was free from disease, its edges being soft and velvety. The aortic valve was thickened, its edges greatly roughened, and when shut its segments would not approximate closely. A spicula of bone extended from the side of the aorta to the free edge of one of the segments and interfered very much with the movements of the valve. The aorta was dilated for two inches above the valve, and its walls were calcified so as to give a gritty feeling to the fingers. The lungs showed signs of having been congested. They were of a dark color, and the lower lobes were oedematous. The tissue upon section was found to be filled with little brown spots showing congested blood vessels. The liver was a little larger, and its color a little darker than normal. Upon section the tissue showed the brownish spots and the nutmeg color, typical of the congested liver. The spleen was enlarged to nearly twice its natural size; its tissue was very friable and of a deep black color. The kidneys were normal. No other organs were examined.



## CASE 22.

T. F.: age, 52 years; nativity, Ireland; was admitted to the marine ward of the Sisters' Hospital, Buffalo, N. Y., December 4, 1890; died January 7, 1891.

*History.*—He presented the following symptoms, viz: Difficult breathing, which was increased upon exertion. Region of cardiac dullness was increased. Superficial veins prominent. Pulse weak and compressable. Lower portion of both lungs dull on percussion.

*Necropsy.*—Right lung greatly congested at base and partly adhered to diaphragm. Lung tissue less crepitant than the normal. Compression caused bloody and frothy serum to exude. Left ventricle dilated, walls thinned, small organized blood clot; mitral valves insufficient, edges somewhat thickened and atheromatous and in parts having a calcareous deposit. Other organs apparently normal.

## CASE 23.

J. O'N.; age, 36 years; born in Ireland; admitted to the U. S. Marine Hospital, Chicago, Ill., January 20, 1891; died April 3, 1891.

*History.*—Several years ago suffered with a severe attack of rheumatic fever, followed with acute endocarditis. Acute heart symptoms improved after a short time. A few months later noticed a shortness of breath upon violent exercising. Paroxysms of dyspnoea became frequent and severe. Oedema and other symptoms of impeded circulation developed. Upon admission he presented well-marked symptoms of a valvular lesion. Physical examination determined the undoubted presence of stenosis of mitral opening, with compensatory hypertrophy. He suffered at intervals excruciatingly with rheumatic pains in various joints, accompanied with evidence of effusion. Pain would continue four or five days, and upon subsiding there would appear an abundant crop of small spots of purpura, which would remain two or three weeks. Oedema of extremities was persistent and became the source of much suffering at times, which was greatly relieved in the legs by multiple punctures about feet and ankles. He died during a paroxysm of asphyxia and pain about heart.

*Necropsy (fifteen hours after death).*—Post-mortem lividity general over body. *Rigor mortis* moderate. Body fairly nourished; pupils dilated; oedema of legs; abdomen greatly distended with ascitic fluid. Chest: Heart greatly hypertrophied, and left ventricle dilated. Mitral opening contracted to a mere chink; the valve eroded and calcified. Calcareous deposits in walls of left ventricle. One segment of tricuspid valve partially eroded and edge calcified. Heart weighed 700 grams. Pericardium adherent to heart, obliterating the cavity. Lung: Pleural cavity obliterated, lower lobe constitutes an abscess filled with 300 c. c. of pus and degenerated lung tissue; walls of abscess intact; lung weighed 550 grams. Left lung: Pleura nonadherent, normal, weight 850 grams. Liver: Greatly enlarged, posteriorly adherent to peritoneum and diaphragm, weighed 2,370 grams; gall bladder contained 25 c. c. bile, ducts pervious. Kidneys congested, otherwise normal; weight of each, 230 grams.

## CASE 24.

J. W.; age, 26 years; nativity Germany; admitted to the U. S. Marine Hospital, San Francisco, Cal., May 16, 1891; died June 21, 1891.

*History.*—Two years ago he first noticed swelling of the lower extremities. This subsided after two and one-half months so that he was able to resume his duties as seaman. The swelling recurred at intervals and he had not been able to work since April, 1890. His symptoms after coming to the hospital were periodical fever, dyspnoea, and oedema of the lower extremities; there were three attacks

of epistaxis, one being so prolonged as to require plugging of the posterior nares. Physical signs: Heart enlarged, the apex being displaced downward and to the left; there were distinct murmurs, showing insufficiency of the mitral and aortic valves; the spleen was shown to be enlarged by percussion; urine normal, except increased phosphates.

*Necropsy (twenty-three hours after death).—Rigor mortis* marked; general nourishment fair. Heart weight, 660 grams; pericardial sac contained 300 c. c. straw-colored fluid. There were marked dilatations of the cavities of the heart and slight thickening of the walls. The aortic valves presented large vegetation and the mitral was shortened by fibrinous deposit. Lungs: Weight, left 880 grams, right 1,080 grams. There was marked passive congestion and slight cicatrices at their apexes, the pleural sac contained some fluid and presented adhesion at the base of both lungs. Weight of liver, 2,100 grams. This organ had the appearance of fatty infiltration. Kidneys: Weight, left 250 grams, right 230 grams. Cortex narrow, general appearance of fatty infiltration. Spleen enlarged, weight 380 grams, showing a large triangular infarction from arterial plugging.

#### CASE 25.

##### *Secondary syphilis.*

J. L.; age, 60 years; nativity, Alabama; admitted to U. S. Marine Hospital, New Orleans, La., November 29; died November 29, 1890.

*History.*—Patient was brought to the hospital in the ambulance moribund. He was very weak, had pain in chest, and dyspnoea. Pulse, 59; temperature, 35° C. He rapidly failed and died at 6:35 p. m., day of admission.

*Necropsy (seventeen hours after death).*—Body that of a white man, well developed and nourished. *Rigor mortis* well marked. Heart weighed 685 grams. There were several patches on the heart, apparently syphilitic. Pericardial sac filled with serous fluid. Mitral valve incompetent. Left lung weighed 870 grams. The right lung weighed 720 grams. Both pleural cavities were obliterated. Both lungs were congested and hepatized throughout. The liver was cirrhotic anæmic and flabby; weight, 1,550 grams. Left kidney weighed 145 grams, and the right 150 grams; spleen weighed 145 grams.

#### CASE 26.

F. G.; age, 37 years; nativity, Germany; was admitted to the marine ward, St. Vincent Hospital, Norfolk, Va., September 10, 1890; died October 6, 1890.

*History.*—When admitted he had been ill about two months, was in good flesh, but of a very pale color, almost waxen, and had suffered much from dyspnoea and sleeplessness, not having had sleep for a number of days. There was considerable dropsy in the legs. Physical examination showed a badly diseased heart, very rapid and weak in its action, and a well-defined mitral regurgitation. No improvement other than temporary was shown in his condition during his treatment, and he died of exhaustion finally.

*Necropsy (thirty-six hours after death).*—*Rigor mortis* marked; body not emaciated; legs swollen. Pleural cavity contained about 75 c. c. of fluid. Heart sac contained about 50 c. c. Heart enlarged, its walls thickened but soft. The mitral valves were deficient in a marked degree, and the aortic valves did not completely close that canal. Both lungs were congested, and the bronchial tubes filled with a tenacious frothy mucus. In the abdominal cavity were 75 c. c. of fluid. The kidneys were enlarged and the seat of an active congestion. All other abdominal organs were healthy.



## CASE 27.

J. W. K.; age, 34 years; nativity, Delaware; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., August 13, 1890; died September 24, 1890.

*History.*—He was pale and weak upon admission, with body emaciated, and had been suffering with chest pains and difficult breathing for some months. A physical examination revealed an irregular and weak heart, with valvular disease. He did not improve under treatment but his symptoms became more aggravated, and in addition, dropsical effusions occurred in his limbs and belly. He could not rest at all in the recumbent position and obtained very little sleep. He died gradually, seemingly from complete exhaustion.

*Necropsy (eighteen hours after death).*—Body emaciated, bed sore on right hip. Pericardium adherent to diaphragm and left pleura. Mitral valve deficient on two sides, one of the segments only being perfect. Aortic valve in good condition. Aorta dilated for about 3 inches above the valve, the dilatation capable of holding 130 or 140 c. c. of blood. Left lung very much atrophied. Right lung somewhat adherent to pleura, but sound. Stomach and intestines apparently healthy. Kidneys small and somewhat granular. Other abdominal organs normal.

## CASE 28.

*Myocarditis.*

H. H. M.; aged 56; born in New York; admitted to Marine Hospital, Stapleton, Staten Island, July 22, 1890.

*History.*—When admitted was troubled with a dyspnoea from which he had suffered for more than a year, and which at times amounted to orthopnoea. Limbs were oedematous and swollen; general anasarca. Disease progressed from bad to worse until death on September 6, 1890. Treatment palliative.

*Necropsy.*—Rigidity marked. On opening thorax left pleura was found adherent posteriorly; considerable fluid in pleural cavity. Left lung, lobular pneumonia in lower lobe; right pleura, adhesions at apex; hydrothorax. Right lung, lobes partially agglutinated by old adhesions; lobular pneumonia of lower lobe. Pericardium contained fluid. Heart much enlarged and pale; right auricle and ventricles dilated; left ventricle, hypertrophy and dilation. Both myocarditis and endocarditis were marked. Organized fibrinous deposits at apex and on posterior wall; mitral valve inflamed on free edges and plaques found on anterior segment. Liver adherent to diaphragm, firm, cirrhotic, fatty. Spleen small, firm, dark, and cirrhotic. Kidneys normal sized, capsule, nonadherent, small cysts throughout.

## CASE 29.

T. C.; age, 35 years; native of New York; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., August 25, 1890; died September 8, 1890.

*History.*—He complained of palpitation of heart and short breath; said that he had had heart trouble for a considerable length of time, and also had had syphilis six or seven years ago. He was in a very nervous condition and very weak. He had considerable dyspnoea. Physical examination showed mitral and aortic regurgitant murmur and aortic obstruction. Patient sank steadily, and although his oedema became much less, he finally died at 11:15 o'clock a. m., September 8, 1890.

*Necropsy (twenty-four hours after death).*—Post-mortem lividity was marked. Post-mortem rigidity was marked. Left lung was found slightly adherent to diaphragm, small, and on section slightly oedematous. Right lung was very

adherent all over, and was small, oedematous, and very much compressed. Heart was very large, hypertrophied and dilated. The dilatation was on the right side, the hypertrophy was on the left side. Right auricle much dilated. Right ventricle, tricuspid valves were found in good condition. Left auricle, except for the hypertrophy, was normal. Left ventricle, besides the hypertrophy, the free borders of the mitral valve were thickened and roughened. There was old, chronic endo-carditis. Aorta was normal. Liver was very large, fatty, and pigmented; it was very granular and the seat of hypertrophic cirrhosis. Spleen was large and quite hard, showing increase of connective tissue. Left kidney was slightly fatty and rather large. Right kidney was larger than normal, and in the first stage of large, white infiltration. Intestines appeared normal. No other organs were examined. A microscopical examination made of the liver shows a large amount of fibrous tissue which is intralobular; there was also small hemorrhages in the lobules, which appears to have its origin from the capillaries. The kidney was cirrhused and a large amount of new tissue among the convolutive tubules. There is also a desquamatus nephritis.

#### CASE 30.

A. C. Y.; age, 44; nativity, Rhode Island; admitted to the U. S. Marine Hospital on July 19, 1890; died July 23, 1890.

*History.*—The patient had been subject to rheumatism for several years, and for six months previous to his admission to this hospital his feet and legs had become swollen at intervals. Fifteen days before the date of his admission to the hospital his feet and legs began to swell and a feeling of weakness came over him, but not enough then to cause him to stop his work. A few days after this he became so very weak that he had to give up work and go to bed. He also was troubled with very frequent sweating attacks, which occurred both day and night and left him in a very exhausted condition when the attack was over. At the time of his admission to the hospital his feet and legs had become very large and pitted deeply on point of pressure; he also was so weak that he could only walk with great difficulty. Before he came to the hospital his legs had not pained him at all, but on the day he came in he was seized with severe pain in both limbs. After admission to the hospital he grew weaker and his sweating attacks became so frequent that he slept very little at night. His urine also was very high colored and had an offensive smell. Physical examination: On examination the lungs were found in a normal condition. The heart was irregular and the pulse was scarcely perceptible. There was also a well marked and well diffused systolic blowing murmur. These symptoms, pain and swelling of the feet, weakness ever increasing, sweating attacks, and insomnia, grew rapidly worse and continued up till the time of his death. About two or three hours before his death he was seized with symptoms of pulmonary oedema.

*Necropsy (about eighteen hours after death).*—*Rigor mortis* was well marked; general nourishment good. The thorax being opened, the pericardial sac was found in a normal condition. The heart was slightly enlarged, the auricles being very much dilated; the right and left ventricles were dilated, but otherwise normal. The heart valves were all normal except the mitral valve, which was thickened and slightly inflamed. The pleural cavity contained a few old adhesions. The lower lobes of both lungs were much congested and oedematous. The liver was of the form known as the nutmeg liver, cirrhotic and fatty; it was also dark chocolate in color, and mottled. The left kidney was small and harder and more firm than normal. The capsule was nonadherent. The right kidney was a little larger than the left, otherwise the same as left. The spleen was small, hard, and dark slate in color. The brain and cord were not examined.



## CASE 31.

P. F.; age, 34; native of Ireland; admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., June 10, 1890; died November 8, 1890.

*History.*—Patient stated that he had rheumatic fever first when nine years of age. Seven years previous to admission he had another attack of rheumatic fever, in which all the larger joints were affected. He said that he had a chancre five years previous to admission; he also said that he had been a hard drinker. He stated that his present trouble began three weeks before admission; he had dyspnoea, loss of memory, palpitation of heart. He had pain in left side of chest, which was more severe when coughing; slight exertion, walking, ascending stairs, caused attacks of dyspnoea and coughing; had asthmatic attacks frequently at night; he also expectorated a considerable quantity of mucus. On physical examination the following condition was found: Heart being examined, apex one inch to the left of the nipple line, loud presystolic and systolic blowing murmur heard at apex and over left side, and heard posteriorly at angle of scapula; murmur was not heard distinctly over aorta. The patient was given tinct. digitalis as a heart tonic, but did not improve. Caffeine was given occasionally. He complained at times of severe headache, which was relieved by fl. ext. jaborandi. He grew worse gradually, finally dying November 8, 1890, at 7:40 o'clock a. m.

*Necropsy.*—*Rigor mortis* not marked. Post-mortem lividity not marked. Heart examined; the pericardium contained about 1,000 c. c. of serum, had an old pericarditis. The heart was very much enlarged, left auricle was dilated, left ventricle hypertrophied and dilated. The right auricle was dilated; the right ventricle contained an ante-mortem clot. The heart muscles were pale and in a condition of fatty degeneration. The mitral valve was insufficient and calcareous deposits on the leaflets. Vegetations were found on the semilunar valves; the tricuspid was normal. Fluid was found in the left pleural cavity, adhesions posteriorly and inferiorly; right pleural cavity posterior adhesions, otherwise normal. Left lung examined; posterior and inferior adhesions; the lung was pigmented and slightly congested; otherwise normal. Right lung examined; posterior adhesions, pigmented, œdematous, and slightly congested at base. Cicatrices were found at apex. Liver examined; was found congested, otherwise normal. Spleen examined; very much enlarged, friable and congested. Left kidney examined; capsule nonadherent; kidney was mottled, otherwise normal. Right kidney, capsule nonadherent, the kidney somewhat congested, otherwise normal. Intestines examined; normal. Pancreas examined; normal.

## HEART FAILURE DUE TO CLOTS IN RIGHT AURICLE AND RIGHT VENTRICLE.

G. F.; age, 31 years; native of Italy; was admitted to U. S. Marine Hospital at Stapleton, Staten Island, N. Y., on August 12, 1890; died August 15, 1890.

*History.*—Patient denies ever having had syphilis, but says that about three weeks ago he was taken with pains in the head and knees. He has had fever and sweating periods every two or three days, but denies having had any chills. When he has had fever the pains in his head and knees have been very severe, but at other times he has not suffered much from them. He also complained of severe pains in the stomach and has vomited more or less ever since he began to be sick, until two or three days ago. Patient became rapidly worse, and appeared to become maniacal. On Wednesday, August 14, his mania became active and he had to be restrained in bed. Morphia sulphate, .02 gram, was administered hypodermically, producing quiet. His symptoms again becoming active at

nightfall, a further dose of .0166 gram of morphia sulphate was administered subcutaneously. The night was passed quietly and this morning, August 15, patient appeared much easier and quiet. No special symptoms were noticed, except slight vomiting and a slight rise of temperature to 38.1°. Patient continued in much the same condition until about 12:30 p. m., when he suddenly failed and died, in spite of all efforts, at 12:50 p. m., August 15, 1890.

*Necropsy (about twenty-two hours after death).—Rigor mortis* was well marked; post-mortem lividity was well marked; left lung was bound down by old, lateral adhesions, otherwise normal; hypostatically congested. Right lung, no adhesions found; was the seat of atelectasis of lower lobe. Pericardium, normal; heart in systole; left auricle and left ventricle both found normal; right auricle and right ventricle were both the seat of ante-mortem clot; pulmonary arteries, normal; liver, surface decidedly adherent, was found cirrhotic; spleen, slightly enlarged (malarial enlargement); left kidney, slightly congested, otherwise normal; right kidney, same as left; small intestines were found normal; mesenteric glands, slightly engorged; stomach empty, perfectly normal; brain, normal; spinal cord not examined.

#### DILATATION OF HEART, LEFT SIDE, WITH HYPERTROPHY.

H. T. S.; age, 55 years; nativity, New York; admitted to the U. S. Marine Hospital, Port Townsend, Wash., August 31, 1890; died September 3, 1890.

*History.*—This patient had been treated for years in different hospitals, and at his home in San Francisco for heart trouble. He had been strongly advised to abandon the sea and any violent exertions, but disregarded the admonition. He was removed from the steamship *Queen* at Tacoma to a Sound steamer and transferred to this hospital. Upon admission, dyspnœa was found to be intense, with great turgidity of the venous system; bowels open, patient unable to assume a reclining position; small, broken doses of morphia administered, with infusion of digitalis and citrate of potash, ameliorated his condition temporarily, until death occurred.

*Necropsy.*—Body fairly well nourished; capillary congestion marked; some old pleuritic adhesions noted; lungs in fair condition; the heart was greatly enlarged; left ventricle dilated with compensatory hypertrophy of this side; the valves were in fair condition, but contained calcareous matter; liver, congested and enlarged; other organs, normal.

#### DILATATION OF HEART.

W. M.; age, 45; nativity, New York; admitted to the marine ward, St. Mary's Infirmary, Galveston, Tex., July 29, 1890; died July 30, 1890.

*History.*—Had been in this hospital several times before for attacks of heart trouble; would improve and be discharged. On admission was brought in by patrol wagon, almost in a state of collapse; heart acting badly, extremities cold, respiration labored; remedies relieved him somewhat, but died of heart failure next morning.

*Necropsy.*—*Rigor mortis* well marked. Post-mortem congestion well marked, especially about head and back. Heart was hypertrophied, and dilated in all its cavities. Mitral stenosis marked; slight atheroma of aorta. Hypostatic congestion of both lungs; large, old infarction in lower lobe of right. Spleen congested, capsule thickened. Kidneys congested; right had mark of old infarction; slight increase of connective tissue; left same. Well-marked typical "nutmeg" liver. Intestines intensely congested. Other organs normal except for congestion.



## ATHEROMA.

C. M. R.; age, 68 years; nativity, Virginia; admitted to Cleveland City Hospital June 12, 1891; died June 26.

*History.*—Sick fifteen days before admission; headache and pain in stomach. On June 11 he fell downstairs and was found unconscious. On admission could be aroused with difficulty; complained of pain in head and right hip. No fracture or contusion found. No paralysis. Urine: sp. gr. 1025, acid, slight amount of albumen; amount in twenty-four hours, 1,125 c. c.; contained fatty casts, pus, squamous epithelium; bowels constipated; stupor increased.

*Necropsy (five hours after death).*—*Rigor mortis* present. Body emaciated. Pericardial sac contained 22 c. c. brownish yellow turbid fluid. Wall of left ventricle greatly thickened; cavity of right ventricle very small; atheromatous patches in aorta from heart to diaphragm; several calcified near heart. Left pleural sac contained many firm adhesions; right, few adhesions. Upper lobes of both lungs normal, lower lobes congested; intestines loaded with fœces; liver normal; kidneys both small one; small cyst at top of left. Spleen small, firm.

## ANEURISM OF AORTA.

## CASE 1.

W. B.; age, 47 years; nativity, Ireland; was admitted to the U. S. Marine Hospital, New Orleans, La., June 17, 1890; died August 23, 1890.

*History.*—Examination of the patient on admission revealed a pulsating tumor in the back close to the spine; also a pulsation of the entire lower anterior portion of the left side of the chest with every heart beat. No bruit was heard but a friction sound accompanying the systole of the heart. The pulsation of the tumor could be felt to be about 1 inch below the border of the ribs. The heart beat was irregularly intermittent. The patient was subject to attacks of severe pain in chest, epigastrium, and back, coming on at intervals of six months or so. He complained frequently of pain while under treatment in the hospital, and for a considerable time hypodermatic injections of morphine were administered daily. Death resulted from hemorrhage into the air passages.

*Necropsy (three hours after death).*—Body that of a well-nourished, muscular white man of middle age. *Rigor mortis* marked. The heart was enlarged, flabby, and loaded with fat, the surface showing succulated patches of organized material. The aorta and all the valves of the heart contained calcareous deposits. The heart weighed 410 grams; its ventricles were hypertrophied, the left being dilated and showing softening of the walls. The lungs were oedematous; the right inferior lobe was adherent to the chest wall. The left inferior lobe was adherent to the diaphragm and closely connected to the aneurismal tumor; the superior lobe of the lung of this side was compressed, hepatized, displaced, and almost absorbed; the weight of this lung was 810 grams. The thoracic aorta was the site of an aneurismal tumor, which had ruptured into the left bronchus. The sac was filled with a firmly organized clot, occupying almost the entire space, together with some coagulated blood. The aneurism was 15 cm. long and 10 cm. in breadth at its greatest diameter. The liver was enlarged, mottled, congested, and fatty. The gall bladder was large, containing 125 c. c. of normal bile. The weight of the liver was 2,070 grams; the spleen weighed 250 grams. The kidneys were fatty, the left weighing 170 grams and the right 147 grams. The articular facets and vertebral extremities of the third, fourth, and fifth ribs of the left side were almost completely absorbed, while the second rib was affected to a less degree.

## CASE 2.

P. P.; age, 36; seaman; nativity, Finland; was admitted to the Marine Hospital at Bangor, Me., August 22, 1890, and died October 24, 1890.

*History.*—Patient had been sick for about nine months; had received the benefits of the Service from April to July of this year in other marine hospitals, but had been serving on board ship for several weeks prior to coming under my observation. He complained of great weakness, loss of flesh and appetite, cough, hoarseness, pain between the scapulæ, and a feeling of constriction at the top of the sternum. The pulse was 100; respiration 28, and temperature normal. Inspection revealed nothing abnormal, except that respiration was somewhat labored. Percussion showed in general diminished resonance, but dullness was distinctly present over a considerable area of the middle of left side of chest posteriorly and extending around into the left subaxillary region. Resonance at apices of lungs very nearly normal. Auscultation revealed numerous fine moist râles throughout all portions of each lung. In the right subaxillary region was heard a peculiar sound resembling most nearly the noise of a distant train of steam cars. There was no cardiac bruit and no aneurismal thrill. As seen by the laryngoscope the whole mucous lining of the larynx was congested. The physical signs were confusing, and his condition critical out of all proportion to the signs elicited by the repeated thorough examinations. The left side of chest was aspirated in several places on two different occasions, resulting in nothing but the withdrawal of a small quantity of blood which on microscopical examination showed a few round cells suggestive of a malignant process. No new symptoms appeared, except obstinate diarrhoea, but difficulty in breathing increased, unrelieved by medication, until death occurred.

*Necropsy (ten hours after death).*—*Rigor mortis* partial; body greatly emaciated. Cranial cavity not opened. Thoracic cavity opened. The pericardium contained  $1\frac{1}{2}$  ounces of bloody fluid. Heart normal. The pleural cavities were obliterated and the lungs were with much difficulty separated from the wall of thorax. The adhesions of the costal and pulmonary pleuræ were so universal and so tough as to require great strength to liberate the lungs. The mucous membrane of the larynx and trachea was in a state of chronic inflammation. The mucous lining of the bronchial tubes throughout each lung was highly congested. Moderate solidification at both the apexes was present. A cavity the size of an almond was found in the front part of the upper right lobe, and section through any part of either lung was followed by the discharge of a thin purulent liquid from the bronchi and bronchioles. The upper portion of the descending thoracic aorta was the seat of two saccular aneurisms; the one was the size of a good-sized orange, and commencing on the outer and posterior aspects of the great vessel pressed to the right, dislocating the trachea and œsophagus to the right of and behind the innominate artery, and backwards to the spine, eroding the bodies of the first four dorsal vertebræ, especially the second and third. To these vertebræ the aneurism was firmly attached. The other aneurism, as large as a small orange, arose from the inner and anterior surfaces of the same portion of the thoracic aorta and projected forwards and to the right. Each was very nearly filled with fibrinous layers. No rupture of the aneurisms had taken place. The one first described, however, was gangrenous on its posterior aspect. The inner coat of the aorta was, for 3 inches below the aneurisms, thickened, and gave evidence in one spot of a giving way of the intima in a third place. Abdominal cavity opened. The spleen and kidneys were somewhat enlarged, but the other organs contained within this cavity were normal.



## CASE 3.

H. W.; age, 56; native of Germany; was admitted to Marine Hospital, Stapleton, N. Y., December 20, 1889; died July 30, 1890.

*History.*—He complained of a heavy cold, having been taken ill two weeks before admission. Complained of severe cough and feeling of rasmus in chest. Expectoration was scanty. Appetite poor. Bowels regular. Tongue had a few patches of coating, red and furrowed. Auscultation of lungs was negative. Auscultation of heart gave murmur at apex and under left axilla. Aneurismal bruit was heard over entire chest anteriorly. It was heard more distinctly at epigastrium—in right lateral thoracic region. Distinct pulsation was felt at interclavicular notch. Gave syphilitic history. Had symptomatic cough well developed. Died at 1.45 p. m. on above date.

*Necropsy.*—Post-mortem lividity was well marked; also *rigor mortis*. General nourishment was poor. The pericardial sack was enlarged (dilated) and seat of fatty degeneration. All the valves were in a state of fatty degeneration. The left ventricle was the seat of eccentric hypertrophy. The walls were thickened and the auriculo-ventricular valves hypertrophied. Right side in a similar condition. An aneurismal dilatation was formed at the arch of the aorta, confirming diagnosis. The left lung was found slightly adherent, the right lung very adherent. Both lungs were hypostatically congested, and the seat of a lobular pneumonia. The liver was engorged and congested. The kidneys were enlarged, white, and granular. The spleen enlarged.

## CASE 4.

J. S.; age, 33; born in New York; admitted to the U. S. Marine Hospital at Chicago, Ill., January 13, 1891. Died January 19, 1891.

*History.*—Patient knows little of his family history, except that his father died of some lung trouble, probably tuberculosis. He was a strong, healthy boy, and says that he was never sick in bed up to the time of this present illness. He worked hard as a fireman for over fifteen years; was constantly exposed to hardships, exposure to the weather, and to sudden changes. Patient was a hard drinker. He had gonorrhœa five or six times; ulcer of the penis five times; buboes once. There is no distinct history of syphilis. Never had rheumatism. His present illness began a year ago. The first symptom noticed was a peculiar pain, resembling a wire drawn through the body from sternum to back. Shortness of breath and difficulty in swallowing came on. He went on a spree, was out in the rain, following which he was laid up in bed five weeks with an aggravation of all the symptoms. He improved again—and had another severe spell in the summer. The pain changed in character to a dull, heavy, oppressive feeling behind the sternum; very severe paroxysms were excited by walking a short distance. The dyspnoea grew worse, coming on with exertion or excitement. No dropsy. On examination an impulse is seen in the fifth interspace, at the parasternal line. On palpation this impulse is felt over the precordial region. It is strong in character, forcibly lifting the hand; no thrill; no epigastric pulsation. Percussion maps out the normal triangle of cardiac dullness. On auscultation a hard, high pitched, blowing systolic murmur, replacing the first sound murmur, is heard most distinctly in the fifth interspace an inch from left edge of sternum. This murmur is transmitted in a direction outward and upward. Faintly heard at anterior axillary line, and lost in the axilla. It is not transmitted down the course of the aorta. On swallowing water, its passage down seems to be stopped at about a level with the seventh rib, where it joins the sternum; and it can there be heard, several minutes afterwards, to gurgle into the stomach, each time he makes a forcible effort at gulping it down. Without any warning patient got up from

bed, fell heavily to the floor. A large amount of blood escaped from his mouth, and in five minutes he was dead. The diagnosis of aneurism was made from the peculiar murmur, accentuated second sound, and the symptoms of pressure on the œsophagus.

*Autopsy (ten hours after death).—No rigor mortis.* Body fairly well nourished. Directly behind the heart, in the posterior mediastinum, is an aneurism the size of a large orange, saccular in form, and springing from the descending portion of the thoracic aorta. It bulges forward and to the left and extending downward as far as the diaphragm, which is not displaced. Posteriorly it eroded the bodies of the sixth, seventh, and eighth dorsal vertebræ on their left sides. Just above the aneurism, at the level with the fifth dorsal vertebræ, is the bifurcation of the trachea, which is not, therefore, interfered with. The sac communicates with the aorta by a large patulous circular opening about 10 mm. in diameter. It is partly filled with a soft currant jelly clot, which readily fell out. But at the inferior portion is an irregularly shaped laminated clot adhering to the inner wall of the sac. The upper portion of the sac is smooth, thin, and lined with a smooth membrane resembling the intima. At this situation is a circular opening about 2 mm. in diameter, leading directly into the œsophagus. The edges of this rent are clean and look fresh. The œsophagus is closely adherent to the wall of the sac along its entire length. The œsophagus is not dilated. The mucous membrane appears normal, and there is no ulceration about the opening into the aneurism. The aorta is studded with many patches of atheroma. The aneurism doubtless started from one of these patches. The heart is hypertrophied. There are a few adhesions in the left pleura and also in the peritoneum under the diaphragm in the neighborhood of the aneurism. All the other organs were normal.

#### CASE 5.

W. M.; age, 24; United States; was admitted to the marine ward of the Sisters Hospital, Buffalo, N. Y., January 13, 1891; died January 25.

*History.*—Patient complained of pain in region of tenth rib, left side; was anæmic, had exostoses on tibia and frontal bones. Lymphatic gland hard and swollen. Died suddenly on above date.

*Necropsy.*—Upon opening the thoracic cavity 6 or 8 liters of blood was found; further investigation proved death to be the result of the rupture of an aneurism of the thoracic aorta about the size of a large hickory nut. The rupture was about 0.3 mm. in length. Aorta from iliacs to heart studded with plates of atheroma.

#### CASE 6.

M. B.; age, 43; nativity, Kentucky; admitted to the U. S. Marine Hospital, Cairo, Ill., October 27, 1890; died February 27, 1891.

*History.*—Had been ill many months. Right pulse obliterated; no perceptible bruit. Dyspnoea marked. Iodide of potassium and stimulants were the chief medicines.

*Necropsy (twelve hours after death).*—Post-mortem lividity marked; *rigor mortis* not complete in upper limbs; general nourishment good. Heart weighed 510 grams; pericardial sac contained a small amount of fluid. The aortic valve was calcareous; the other valves competent. The ventricles were dilated, and the walls hypertrophied. An aneurism the size and shape of a cocoanut existed on the arch of the aorta, just at the giving off of the innominate, involving the latter. It was of the fusiform variety. It ascended into the suprasternal notch, as far as the pomum Adami, pressing heavily on the trachea. The aorta was athero-



matous. The aneurism weighed 690 grams; the other vessels were normal. Nares, larynx, and trachea normal. Left lung weighed 540 grams; considerable muco pus in the tubes. The right weighed 630 grams, similar to the left. Both pleural cavities normal. Tongue, pharynx, esophagus, and stomach normal. Intestines normal. Liver weighed 1,950 grams, and was nutmeg. Gall bladder and ducts normal. Left kidney weighed 240 grams; right, 270 grams; both normal. Pelvis, ureters, bladder, urethra, and prostate normal. Spleen weighed 360 grams; normal. Nervous system not examined.

#### CASE 7.

M. K.; age, 30 years; nativity, France; admitted to U. S. Marine Hospital, San Francisco, Cal., May 7, 1891; died May 21, 1891.

*History.*—When received he was suffering from dyspnœa and cough. The physical examination disclosed a want of clearness on percussion over both lungs and abundant moist râles. There was slight hæmoptysis. Death was caused suddenly by hemorrhage through the mouth.

*Necropsy.*—*Rigor mortis* well marked; general nourishment fair. The lungs were deeply congested, and over quite an extensive area on the left side there was the appearance of gray hepatization.. The heart was normal in appearance. The ascending and first portion of the transverse aorta was dilated into an aneurism 6 by 10 cm. in size. The posterior wall of this aneurism was attached to the trachea, having perforated its wall above and below two of the cartilaginous rings. The wall of the aneurism was quite thick in other localities.

#### ANEURISM OF INNOMINATE ARTERY.

A. J. T. (colored); age, 35; a native of Louisiana; was admitted to the U. S. Marine Hospital, St. Louis, Mo., October 28, 1890; died February 15, 1891.

*History.*—Cough for one year; dyspnœa on slightest exertion; loss of appetite, strength, and flesh. No pain or fever. Physical examination showed a tumor beneath the manubrium sterni. This tumor extended into the suprasternal notch. It could be felt beneath the skin where it had eroded the bone. The tumor was an expansile one, and gave a double bruit on auscultation. Posteriorly the tumor pressed on the trachea and recurrent laryngeal nerve, occasioning much cough. The collection of mucus below the tumor caused some cough. With iodide of potash and veratrum viride the tumor became filled with fibrin and ceased to pulsate. It was then felt beneath the skin as a hard tumor. It gave more disturbance than when it was pulsating. He failed gradually and constantly, and died February 15, 1891. The tumor might have caused death in several ways: by cutting off the blood supply of the brain; by interfering with respiration, and by preventing the return of venous blood from the head by pressure on the superior cava.

*Necropsy.*—Showed aneurism of innominate artery. The sac was filled with a firm laminated coagulum. It had involved all the arteries arising from the arch of the aorta. The arteries above the sac were small. Right side of heart dilated and hypertrophied. Valves efficient. Both pleural cavities obliterated by old adhesions, which were very firm. Left lower lobe of lung showed posteriorly hypostatic pneumonia. Upper lobe left soft and friable.

#### CEDEMA GLOTTIDIS AND PNEUMONIA LOBAR.

W. C.; age, 48 years; nativity, Pennsylvania; admitted to marine ward, Mercy Hospital, Pittsburg, Pa., October 20, 1890; died October 30, 1890.

*History.*—Patient had been drinking hard for two weeks and the day before admission to hospital he got into a fight. Examination on admission revealed

sprain of shoulder and impacted fracture of radius at wrist; œdema glottidis and congestion of lungs. The œdema becoming more marked and threatening suffocation, O'Dwyers intubation tube was inserted, which gave considerable relief. Temperature averaged 40° C; respiration 60 per minute; patient was delirious. Mustard poultices were applied; digitalis, quinia, and carbonate of ammonia, with the free use of stimulants, were administered, but without benefit.

*Necropsy (six hours after death).*—External appearances: Weight 170 pounds; height 5 feet 7 inches; posterior post-mortem lividity; *Rigor mortis* not marked; body well nourished. Impacted fracture of right radius and abscess on dorsal surface of same wrist; also abscess over left eye. Large right scrotal hernia (old). Abdomen distended. Heart, weight 375 grams; slightly enlarged, filled with blood, ante-mortem clot in right ventricle; valves normal. Larynx and glottis œdematous, showing decided infiltration of subcutaneous tissue. Lungs, left, weight 430 grams, intensely congested and slightly adherent laterally. Right lung, weight 680 grams, pneumonic consolidation of lower part of middle and upper part of lower lobes, with marked engorgement of remaining tissue. Stomach and intestines distended with gas. Liver, color normal; weight 2,125 grams. Gall bladder contracted and contains a calculus. Pancreas, weight 158 grams normal. Kidneys "pigbacked" (alcoholic congestion) each weighed 285 grams. Spleen weight 425 grams. Skull normal, pia mater slightly congested. Brain, weight 1,200 grams.

#### BRONCHITIS—ACUTE.

W. R. M.; age, 29; nativity, Massachusetts; admitted to the U. S. Marine Hospital, San Francisco, Cal., December 12; died December 23, 1890.

*History.*—This patient was a large, muscular man of Indian descent. When admitted was suffering with catarrhal bronchitis of ten days' standing. His temperature ranged very high, generally 39° C. in the morning and 40° C. in the evening. His disease was complicated with attacks of asthma, and progressed to a fatal termination. Expectoration copious throughout the disease, and breathing very labored on account of the enormous accumulation of mucus, which at no time diminished.

*Necropsy (twenty-four hours after death).*—Both lungs were very much congested. The right one contained disseminated spots of induration due to catarrhal pneumonia. Heart large and flabby; valves normal; intestines normal. Liver enlarged and congested. Both kidneys enlarged and in a state of acute pareuchymatous inflammation; spleen normal.

#### CARDIAC ASTHMA AND CEREBRAL EMBOLI.

W. S.; age, 55 years; nativity, Ireland; admitted to the U. S. Marine Hospital, San Francisco, Cal., July 25, 1890; died August 10, 1890.

*History.*—Upon admission his constitution seemed to be very feeble, and he suffered with attacks of difficult breathing, these attacks coming on usually about 2 o'clock a. m. Area of cardiac dullness enlarged, and apex beat to the left, but no murmur could be detected. On the 9th of August he became suddenly unconscious, with paralysis of left side, and died the following night.

*Necropsy (twelve hours after death).*—*Rigor mortis* well marked. Heart enlarged; weight 550 grams. All the cavities dilated, especially on the right side. Calcareous deposits in aortic valve. Fibrinous deposits in pericardial sac. Right lung weighed 750 grams, left 480 grams. Bronchial tubes very much thickened. Pleuritic effusion in right cavity; also tubercular deposits in right pleura. Liver in a state of fatty degeneration; weight, 1,620 grams. Left kidney weighed 170 grams, and was very much congested; right one weighed 120 grams. Spleen



weighed 180 grams, was soft and friable. Dura mater thickened and attached to skull; signs of old inflammation of arachnoid, subarachnoid effusion, and the veins very much congested.

#### ŒDEMA OF LUNGS.—ANEURISM OF THORACIC AORTA.

E. A.; age, 37 years; seaman; nativity, Rhode Island; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., July 12, 1890; died July 13, 1890.

*History.*—He had been suffering for some weeks with dyspnœa and vertigo, and occasionally sharp pain in his chest under the sternum, but the difficult breathing was the prominent symptom. On inspection the chest was symmetrical and no unusual movement of chest wall was noticed. On listening to the heart an indistinct and muffled "bruit" was heard with the first sound, but that was the only evidence of disease. His heart beat was 78 per minute. He ate a very large supper on the night of the 13th, and in about one-half hour afterwards complained of choking, and walked to the window to get fresh air; he had barely raised the window when he fell to the floor and expired.

*Necropsy (thirteen hours after death).*—Body well nourished, *rigor mortis* slight, limbs slightly swollen. The heart was enlarged, the ventricular walls thickened; the right and left ventricles were filled with a blood clot. The pericardium was empty. The aortic valves were imperfect and calcified. About 1 inch above the valves the aorta was dilated into an aneurism, fusiform in shape, involving the arch as far as the left common carotid artery. This tumor was solid in its walls, with very well-marked layers of organized blood clot, and a canal through its center rather larger than the aorta, and a branch canal for the passage of blood to the subclavian and carotid arteries of the right side. In no place was the wall of the aneurism weakened, but its layers were well organized except in its center, which was lined with comparatively fresh clots. Both lungs were œdematous, and many adhesions existed between the pleura and lungs. The abdominal cavity contained about 750 c. c. of fluid. The liver was enlarged, and weighed 3,000 grams; on section it was found congested. The kidneys were small and granular. Other abdominal organs were sound. The weight of the aneurism and contents was 350 grams.

#### CASE 1.

##### *Pneumonia lobar.*

S. R.; age, 32 years; nativity, Alabama; admitted to U. S. Marine Hospital, Mobile, Ala., January 7, 1891; died January 12, 1891.

*History.*—Patient had been sick several days previous to his admission to hospital. He was then suffering with the following symptoms of influenza: Severe headache; pains in back and limbs; slight cough with scanty expectoration; fever and marked prostration. On the second day all the symptoms were more pronounced; high fever; accelerated pulse; dyspnœa; cough more severe, accompanied with expectoration of bloody sputum; palpation showed an increase of vocal fremitus over both lungs; on percussion a marked dullness was noted over the lower lobes of both lungs, and auscultation showed bronchial breathing and increased vocal resonance.

*Necropsy (twenty-one hours after death).*—External appearances: Post-mortem lividity absent; *rigor mortis* marked; body well nourished. Thorax: Heart was hypertrophied; weighed 450 grams; its structure normal. A large ante-mortem clot was found in right ventricle, firmly adherent to tricuspid valve; also small ante-mortem clot in left ventricle; mitral valves slightly thickened but competent; nares dilated; mucous membrane of trachea congested and thickened; both

pleuræ were congested and inflamed; left lung weighed 1,380 grams; the whole lower lobe was firm; slightly increased in volume; in stage of red hepatization; the surface on section had a red and granular appearance; right lung weighed 1,380 grams; the whole lower lobe and portion of upper completely consolidated; in stage of red hepatization; dark red color; firm and heavy; the middle lobe was free from disease. Abdominal cavity: Stomach and intestines normal; liver much enlarged; the upper portion of both lobes inflamed, friable, and contained several spots of fatty degeneration weight, 2,680 grams. Pancreas normal; weight, 100 grams. Left kidney normal; weight, 250 grams. Right kidney normal; weight, 250 grams. Bladder and prostate normal. Spleen enlarged and congested; weight, 470 grams. Cranium: Brain not examined.

### PNEUMONIA LOBULAR.

#### CASE 1.

J. T.; age, 50 years; born in Virginia; admitted to marine ward, Mercy Hospital, Pittsburg, Pa., November 27, 1890; died November 28, 1890.

*History*.—About two weeks ago patient contracted a severe "cold," attended by fever and cough, with profuse expectoration. Upon admission he was greatly prostrated; temperature, 40° C.; breathing labored and shallow; pulse 120. Cough with muco-purulent expectoration and dyspnœa. Bowels loose; surface covered with profuse perspiration. Physical examination revealed patches of dullness over both lungs with intervening hollow note. Vesico-bronchial breathing associated with subcrepitant râles. Treatment consisted of nutritious concentrated food, stimulants, quinia and carb. ammonia. Died at 4:30 p. m. the day after admission.

*Necropsy (eighteen hours after death)*.—External appearances: Height, 5 feet 7 inches; negro. *Rigor mortis* marked; general nourishment, fair; pupils normal. Pericardial sac has old adhesion to heart, wall anteriorly. Lungs: Left, weight 780 grams; right, weight 1,080 grams. The affected parts are of grayish red color. There is hyperæmia and thickening of the mucous membrane of the bronchi and also of the bronchioles and air cells, which contain an abnormal secretion of a yellowish, creamy mucoid material. On section of the lung drops of this exudate escapes from the finer tubes like pus from a small abscess. There are firm plural adhesions to right lung and chest wall. Stomach dilated. The mucous membrane irregularly congested and covered with catarrhal exudate. Liver enlarged. There is a hemorrhagic infarction (size of walnut) in margin of right lobe. Color normal; weight, 2,125 grams. Gall bladder normal; kidneys slightly congested; left, weight 210 grams; right, weight 180 grams. Spleen atrophied; weight, 85 grams.

#### CASE 2.

H. T. (colored); age, 29 years; native of South Carolina; admitted to U. S. Marine Hospital, Memphis, Tenn., November 19, 1890; died November 22, 1890.

*History*.—Two days before admission he began to have pain in left side, with fever and cough. When admitted was suffering from distressing dyspnœa and pain. There was a loud friction sound over left lung and slight dullness at lower part of left upper lobe. This dullness rapidly increased in area, the right lung became involved, and the patient sank rapidly.

*Necropsy*.—Body well nourished; beginning *rigor mortis*. Heart: Weight, 370 grams; valves normal; an immense ante-mortem clot formed a cast of the right cavities. Right lung: Weight, 1,950 grams; in state of gray hepatization, except apex and a small area at the base. Left lung: Upper lobe in stage of gray hepatic



zation; lower lobe in first stage. Liver: Weight, 3,000 grams; deeply congested. Spleen: Weight, 750 grams; congested. Kidneys normal; the right kidney weighed 210 grams; the left, 230 grams. The pancreas weighed 120 grams.

## CASE 3.

J. C.; age, 48; seaman: native of Canada; was admitted to the U. S. Marine Hospital, at Stapleton, Staten Island, N. Y., on October 1, 1890; died October 3, 1890.

*History.*—Patient stated that he has for some months had great difficulty in urinating. The stream stops suddenly and as suddenly starts again. Had gonorrhœa some years ago. Patient complained of a very severe cold and said he found great difficulty in breathing, and had a severe pain in right side on deep inspiration. Has had a very severe and constant cough for several days, and has raised a great deal of rusty sputum. Has had night sweats and has spit up a good deal of clear blood. Bowels have been regular, but has absolutely no appetite, and vomits food as soon as taken. Has lost a great deal of strength within last few days before admission, and has rapidly become emaciated. Physical examination: Considerable dyspnoea. Crepitant râles heard over lower portion of right lung, posteriorly. There was decided consolidation of that portion of lung. Patient sank steadily from time of his admission to hospital until he finally died at 1:40 o'clock p. m., October 3, 1890.

*Necropsy (twenty-two hours after death).*—Post-mortem lividity was marked. *Rigor mortis* was marked. Left lung was found hypostatically congested, otherwise normal. Right lung was generally the seat of gray hepatization. Pleura was generally adherent. Calcareous deposits were found in the cavities. Consolidation of lung. Heart: Left auricle, a large ante-mortem clot was found, which extended into the left ventricle; right auricle, an ante-mortem clot was found extending into right ventricle. Cardiac walls were found normal. Liver was found slightly enlarged, otherwise perfectly normal. Spleen was very soft and distinctly infectious. Kidneys: Right was normal; left was normal. Capsules were nonadherent. Intestines were normal. Bladder not examined. Brain not examined. Spinal cord not examined.

## CASE 4.

M. O.; age, 62; nativity, Sweden; admitted to marine ward, St. Mary's Infirmary, Galveston, Tex., June 30, 1890; died July 6, 1890.

*History.*—Patient had contracted pneumonia by sleeping on deck several days previous to admission. The right lung only was affected, but the patient was an obstinate old man, who could not be made to take care of himself. He could with great difficulty be made to take medicine, and it was impossible to keep the cover on him. Three nights before his death, during the rounds of the night nurse, he made his escape from the ward, and was not found for several hours. He said the ward was hot, so he went out to lie in the wet grass, as he knew that was the best thing for him. As a consequence of this exploit the inflammation extended to the left lung, and he died of apnoea.

*Autopsy (eighteen hours after death).*—*Rigor mortis* well marked; body well nourished; an old scrotal hernia on right side. Lungs, recent pleuritic adhesions on both; right lung had only two lobes; extensive pneumonia on both sides, extending over two-thirds of their extent, varying from gray to red hepatization; œdema of both apices. Heart normal and contained ante-mortem clot. Kidney was congested; capsule stripped readily; markings distinct; some increase of connective tissue. Liver enlarged, fatty, and showing increase of connective tissue. Other organs normal.

## CASE 5.

E. W.; age, 23 years; nativity, Louisiana; admitted to the U. S. Marine Hospital, New Orleans, La., December 22; died December 23, 1890.

*History.*—Patient states that eight days ago he was seized with a chill, then fever, followed by pain on both sides of chest, more so on the left side. On his admission to the hospital patient was very weak. His respiration was 64 per minute, jerky, and superficial. His pulse, very weak and fast, 112 per minute. His temperature was 39.2° C. At 6 p. m. patient was restless, his respiration was 62 per minute, and pulse 106. He sank rapidly.

*Necropsy (twenty-six hours after death).*—*Rigor mortis* marked; body that of well-nourished young negro. Both lungs were hepatized. The right lung was in the stage of suppuration at apex; weight of left lung, 920 grams; right lung, 850 grams. The pericardial sac was filled with serum. The heart weighed 330 grams; all valves were competent. The liver was friable and of boxwood color; weight, 1,885 grams. Gall bladder and ducts normal, rather small. Both kidneys were congested; weight of right kidney 182 grams; left kidney, 190 grams. The spleen was friable and congested; it weighed 180 grams. Abdomen and contents normal; peritoneum normal; urethra and prostate normal.

## CASE 6.

H. J.; age, 22; native of Mississippi; admitted to U. S. Marine Hospital, Memphis, Tenn., January 28, 1891; died February 1, 1891.

*History.*—On the day before his admission had a chill, followed by pain in left side and bloody expectoration. On evening of admission temperature was 40.2° C., pulse 116, and respiration 46 per minute; left lower lobe consolidated. Large doses of quinia were given, and on January 29 the evening temperature was 39.2° C., pulse 104, respiration 32. On the following day the right lung became involved and the symptoms grew worse. A profuse diarrhea supervened, and the patient became profoundly prostrated and wildly delirious. The temperature remained stationary at 39.2° C., while the pulse rose to 150 and the respiration to 64 per minute.

*Necropsy (nine hours after death).*—*Rigor mortis* well marked; body well nourished. The right lung weighed 700 grams; very adherent; was of a dark, livid, red color, almost black, and incompletely hepatized; a few tubercles were found in the apex. The left lung weighed 1,400 grams; not adherent; lower lobe in state of gray hepatization; pus flowing freely on section, and the tissue breaking easily under the finger; remainder of lung in stage of complete red hepatization. No portion of either lung was free from the pneumonic process. The heart was normal; weight, 290 grams; the cavities contained large ante-mortem clots extending into the vessels. The liver was enlarged and congested. Other organs normal. Brain not examined.

## CASE 7.

M. S.; age, 35 years; nativity, Ireland; admitted to U. S. Marine Hospital, San Francisco, Cal., March 31, 1891; died April 2, 1891.

*History.*—This patient when admitted was in a very low condition, severe cough, rapid breathing, and an abundance of râles heard over left lung posteriorly. Previous history unsatisfactory.

*Necropsy.*—General nourishment fair. *Rigor mortis* well marked. Heart normal, with the exception of slight hypertrophy of the left ventricle. Weight, 540 g. The visceral layer of pericardium presented small deposits of fibrin. Left lung enlarged, the lower portion posteriorly was in the gray stage of lobar



pneumonia. The left pleural cavity presented adhesions, also a small amount of purulent fluid. Weight of left lung, 2,150 grams; right, 860 grams. A few old adhesions found in right pleural cavity. Abdominal contents and gastrointestinal tract normal. Liver dark brown in color, also enlarged and congested. Weight, 2,150 grams. Left kidney enlarged and congested, cortical portion atrophied. Weight, 200 grams. Right kidney, 190 grams. Spleen weighed 180 grams.

## CASE 8.

J. J.; age, 36 years; nativity, Virginia; was admitted to the marine ward of St. Vincent's Hospital, Norfolk, Va., April 13, 1891, and died April 22, 1891.

*History.*—He had been ill with "La Grippe" for some time, and when admitted had high fever, rapid pulse, difficult breathing, and bloody sputa and great prostration. An examination revealed an inflammation of the whole of the left lung, together with a pleurisy upon that side. His physical condition did not improve after admission to hospital, and while there seemed to be very little change in the condition of his left lung, the lower lobe of the right lung became involved, and he died of exhaustion on the eighth day.

*Necropsy (twenty-four hours after death).*—Height, 5 feet 7 inches; circumference, 40 inches; body emaciated and well marked *rigor mortis*. Pleura attached on both sides in many places, and contained some 250 cm<sup>3</sup> of fluid. The left lung in both its lobes was hepatized, with a bloody and purulent secretion in the bronchial tubes. The lower lobe of the right lung was the seat of inflammation, though not so solidified as the left lung. Its upper lobes appeared to be sound. The heart was enlarged, weighing 330 g., but its valves were whole. The heart sac had a small amount of fluid. None of the abdominal viscera were diseased.

## CASE 9.

C. T.; age, 30 years; nativity United States; was admitted to the U. S. Marine Hospital, Portland, Me., March 24, 1891; died March 27, 1891.

*History.*—This man stated that he had been on a prolonged debauch, ending in delirium tremens, only a few days prior to last sickness. Upon admission, dullness was found over the inferior and middle lobes, also over lower portion of superior lobe right lung, and auscultation gave subcrepitant valves and tubular breathing. Temperature, 40 C°; respiration, 40; pulse, 125 and feeble. Under supporting treatment the patient remained comparatively comfortable until the 26th, the third day after admission, when congestion of the left lung supervened, dyspnoea increased; respiration became more and more rapid, the maximum reaching 60 per minute; mild delirium was more or less constant throughout. The temperature ranged from 39 to 40° C.

*Necropsy (eleven hours after death).*—External examination, height 5 feet 8 inches; circumference at the shoulders, 41½ inches. The post-mortem lividity was marked about the head and dependent portions. *Rigor mortis* marked. The body was well nourished. The pupils were evenly dilated. There was an indirect inguinal hernia on the right side. There were scars on the penis and right groin. The heart after being opened and emptied weighed 345 g.; ante-mortem clots were found in the right auricle and ventricle, entangled in the chordæ tendinæ. Its cavities appeared to be of normal size, and its walls normal in thickness. The valves were competent. The blood vessels show no abnormal conditions. Respiratory organs: The trachea and bronchial tubes were in a state of acute catarrhal inflammation extending into both lungs. The left lung weighed 435 g. There was intense congestion throughout, though somewhat less at the apex. The parietal pleura showed a state of acute inflammation. There was but little exudate in the cavity; at the base there was some fibrinous deposits.

The right lung weighed 1,695 g.; it was nearly solid throughout. The lower lobe was a caseated mass. Its upper and posterior part contained a small abscess about the size of a walnut, about which was a necrotic condition. The middle lobe was also a caseated mass. The upper lobe was caseated below, verging into a state of red hepatization above, while at the apex was intense congestion and inflammation. The pleural surfaces were closely bound together by inflammatory adhesions, except in the lower and anterior parts, where about 180 cm<sup>3</sup> of serum was encapsulated; the walls of this sac were thickly covered by a soft fibrinous deposit. The abdomen showed the following condition: The peritoneal surfaces were healthy. The stomach contained a very small quantity of well-digested milk and egg. The liver was enlarged; weight, 2,435 grams. Its capsule was adherent. Its color was lighter than normal, and was sclerotic throughout. The gall bladder and ducts were normal in appearance. The pancreas weighed 180 grams, and was sclerotic. The kidneys were both congested, enlarged, and sclerotic. The left kidney weighed 285 grams and the right one 255 grams. The pelvis and ureter of each kidney were normal. The bladder was contracted and empty. The spleen weighed 375 grams, was enlarged and sclerotic. An interesting feature is the fact that after so long a debauch and so severe an illness in a chronic alcoholic the stomach should have secreted so active a gastric juice.

#### CASE 10.

P. F.; age, 34 years; nativity, Italy; admitted to the Marine Hospital Stapleton, Staten Island, New York, May 22, 1891; died May 25, 1891.

*History.*—Patient stated that both legs began to swell one week before admission; four days before admission was taken with a pain in cardiac region, difficulty in breathing, epistaxes, and night sweats. On admission he said that pain prevented sleep, appetite poor, bowels constipated. Subcrepitant râles were heard over left side, also friction sound on left side, dullness on precussion; the characteristic rusty sputa was present. Patient became delirious and grew worse rapidly, dying on date above stated.

*Necropsy.*—Post-mortem examination was made nine hours after death. *Rigor mortis* not marked. Post-mortem lividity fairly well marked; body well nourished. Heart normal. Left lung was adherent posteriorly, surface of lung covered with lymph; lower lobe in condition of red hepatization, upper lobe congested. Right lung was congested, otherwise normal. Liver was deeply congested, otherwise normal. Spleen, normal. Kidneys apparently normal.

#### CASE 11.

J. M.; age, 43 years; nativity, Sweden; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., April 6, 1891; died April 11, 1891.

*History.*—Patient stated that five days previous to admission he contracted a cold, followed by a severe chill, dry cough, and severe pain in right side. On admission patient was suffering from dyspnoea; bowels regular, appetite poor, slept badly. Physical signs: Auscultation revealed bronchial breathing and subcrepitant râles over both lungs anteriorly and posteriorly; also, friction sounds on right side. "Brick-dust" sputa appeared on day after admission. Patient grew rapidly worse, becoming delirious on day of death, which occurred on date as above stated.

*Necropsy.*—Post-mortem examination was made thirty-six hours after death. *Rigor mortis* marked; post-mortem lividity marked. Body well nourished. Large pustules on lower extremities, indications of syphilis. Pericardial sac contained about 30 c. c. reddish fluid; no pericarditis. Heart apparently normal.



Left lung adherent posteriorly; deeply congested; muco-purulent material exuded from bronchi on section; also, from entire lung substance. Right lung adherent to all contiguous parts; the whole lung is stage of red hepatization. Liver normal. Spleen small and pale. Kidneys apparently normal. Other organs not examined.

## CASE 12.

G. H. (colored); age, 47 years; nativity, Tennessee; admitted to U. S. Marine Hospital, San Francisco, Cal., April 4, 1891; died April 13, 1891.

*History.*—Two months prior to his admission he suffered from a severe cough; this subsided during a cruise to Australia, but upon his return to a cold climate he was seized with a chill and fever followed by a cough. After his admission to hospital he suffered from dyspnoea, fever of a continuous type, and pleuritic pains. There was dullness and tubercular breathing over the lower portion of left lung, both posteriorly and anteriorly. Death occurred suddenly from hemorrhage.

*Necropsy.*—The left lung was firmly adherent to chest wall at apex; there was a large cavity filled with fluid blood; the remainder of lung was solid from an acute pneumonic process intervening in a carious lung; the tissue was hard and gray, with carious matter scattered through it; weight of left lung, 1,250 grams; the right lung was very much congested and filled with small miliary tubercles; weight, 1,160 grams. Heart weighed 370 grams; right kidney, 130 grams; left kidney, 160 grams; spleen, 180 grams.

## CASE 13.

F. B.; born in Canada; age, 37 years; admitted to the U. S. Marine Hospital, Chicago, April 21, 1891; died April 26, 1891.

*History.*—No previous sickness, no hereditary predisposition, habits good. "Five months ago was taken with bad cold," accompanied with severe cough and distressing frontal headache. Two weeks since had severe chill at night, followed with high fever, paroxysmal coughing, nausea and vomiting, and excruciating pain under right nipple. Expectoration copious, white, tenacious, shortly before admission to hospital became rusty and thin. Upon admission, countenance anxious, severe pain in right side; coughing paroxysmal and severe; sputa copious, rusty, thin, tongue coated; teeth covered with sordes; pulse weak, 100 per minute; temperature 40.5° C.; respiration, 36 per minute, shallow. Physical examination, movement of right side restricted, dullness over right lower lobe; vocal resonance increased, tubular breathing, moist râles. Twenty-second morning, temperature, 40.3°; pulse, 120; respiration, 51. Evening temperature, 30.9°; pulse, 115; respiration, 40. Twenty-third morning, temperature, 40.3°; pulse, 120; respiration, 40. Evening temperature, 40.3; pulse, 120; respiration 45. Twenty-fourth morning: temperature, 40.1°; pulse, 118; respiration, 36. Evening temperature, 40.1°; pulse, 126; respiration, 40. Twenty-fifth morning: temperature, 39.2°; pulse, 128; respiration, 45. Evening temperature, 38.5°; pulse, 140; respiration, 45. Twenty-sixth morning: temperature, 38.9°; pulse 140; respiration, 52.

*Necropsy (twenty-four hours post-mortem).*—Post-mortem lividity, absent; *rigor mortis* well marked; body well nourished. Heart: normal; weight, 600 grams; ante-mortem clot. Lungs: Left, some areas of consolidation in lower lobe; weight, 1,170 grams. Right, consolidated throughout, no crepitation, except slightly at apex; color, dark grayish green; on section pus and degenerated tissue exude; cut sections sink in water; weight of lung, 2,210 grams. Examination carried no further.

## CASE 14.

J. C.; age, 27 years; a native of England; was admitted to the U. S. Marine Hospital, Baltimore, Md., April 22, and died April 26, 1891.

*History.*—Stated he had been sick about three days with fever, sore throat, headache, and pains in extremities, together with a hard, dry cough. On admission, his temperature was 40.2 C.; pulse, 132; respiration, 28. Complaints of pains in head and extremities. Auscultation showed marked dullness, with coarse mucus râles, over entire respiratory tract. The diagnosis of influenza was made and 0.66 g. of quinia sulph. and antipyrine ordered at 6 p. m. and 12 p. m. On the morning of the 23d, his temperature was normal, pulse 84, respiration 24. Expectoration of muco-purulent sputa was quite free, and patient so stated, and seemed decidedly better. The medication was, therefore, changed to quinia, pulv. ipecac, comp., and potass. nitras, of each 0.33 g., every four hours. At the evening visit he expressed himself as feeling better. During the night of the 23d-24th, active delirium set in, and at 9 a. m. the 24th his temperature was 40; pulse 108, weak and irregular; respiration 44, short and gasping. The treatment was again changed to digitalis and carbonate of ammonia, with whisky in the form of egg-nog, *ad lib.* These systems continued without change until 7 p. m., April 26, when death ensued.

*Necropsy (twenty hours after death).*—*Rigor mortis*; body well formed and nourished. Skin of an icteroid hue, closely resembling that of yellow fever. Brain not examined. Thorax: heart normal in size, pale, and decidedly fat. Lungs: Right engorged and inflamed throughout and firmly adherent to chest walls; on section, the bronchi were found full of muco-purulent matter. The lower lobe of left lung presented the same pathological appearance as the right, and was also firmly adherent to the chest walls. There was no effusion into either the pericardium or pleuræ. Abdomen: Alimentary canal throughout, normal. Spleen and pancreas, normal. The liver was also normal, macroscopically, except the extreme right of right lobe, which was in a highly inflammatory condition and adherent to abdominal walls. The right kidney was normal in weight and gross appearance, but the left kidney was dark, friable, and disorganized generally: neither pelvis, calyces, nor pyramids could be discovered on section. It was, in fact, a pultaceous mass. It seems propable, therefore, that the original disease, influenza, was rapidly followed by lobar-pneumonia.

## CASE 15.

*Enteritis.*

H. J.; colored; age, 24 years; nativity, South Carolina; admitted to U. S. Marine Hospital, Baltimore, Md., December 29, 1890, and died December 31, 1890.

*History.*—Negative. On admission was delirious, soon followed by profound coma and death forty-four hours after admission.

*Necropsy.*—Brain not examined. Heart not removed, but appeared normal. Right lung consolidated and adherent to chest walls. Left lung normal. Liver, spleen, and kidneys normal. Contents of abdomen showed extensive inflammatory lesions, the small intestine especially black, and connective tissues agglutinated.

## CASE 16.

T. B.; age, 31; nativity, England; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., March 23, 1891; died March 24, 1891.

*History.*—Patient stated that he was taken sick eight days previous to his admission with some headache and pain in right hypochondriac region. On ad-



mission the patient was suffering greatly from pain in right side, dyspnœa, and cough, expectorating "prune-juice sputa." On physical examination the following condition was found: Dullness on percussion on right lower lobe, crepitant râles, and bronchial breathing heard over affected area. Friction sound over right side, and vocal fremitus diminished. Patient had icteroide appearance. He sank rapidly, dying on date above stated.

*Necropsy.*—Post-mortem examination made twenty-one hours after death. *Rigor mortis* well marked. Hypostasis well marked all over body; body well nourished. Pericardium thickened, evidence of pericarditis, also adherent to pleura. About 15 c. c. fluid found in the pericardial sac. Heart examined. Ante-mortem clot in left ventricle; heart otherwise normal. Right lung examined. Fibrinous deposit on anterior surface; about half the lower lobe in condition of red hepatization; rest of the lung congested. Left lung examined. Was found normal. Liver examined. Adherent to diaphragm, shortened transversely, and thickened; was "hob-nail" in appearance and cirrhotic. Spleen examined. Was adherent to diaphragm and about four times larger than the normal spleen. Left kidney small; otherwise normal. Right kidney normal. Stomach and intestines distended.

## CASE 17.

J. S.; age 30 years; nativity, Germany; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., April 3, 1891; died April 13, 1891.

*History.*—The patient stated that he had a severe chill the evening previous to admission, the chill lasting an hour, which was followed by fever, headache, pains in limbs and body; also slight cough with very little expectoration; bowels regular; appetite poor, slept badly. Patient's temperature was 41° C. on admission. Physical examination revealed no signs of lungs being involved. He remained in this condition until the 7th day after admission, when auscultation revealed moist râles in both lungs. Patient had slight cough, no expectoration, sank rapidly, and died on date above given.

*Necropsy.*—Post-mortem examination made twenty-three hours after death. *Rigor mortis* marked. Post-mortem lividity marked. Body well nourished; chest filled with fluid; a quantity of lymph in pleural cavity. Pericardium congested contained slight amount of pericardial fluid. Heart normal. Left lung mottled and deeply congested. Right lung collapsed, adherent at base, and in condition of gray hepatization. Liver mottled, normal in size, deeply congested, and slightly fatty. Spleen shrunken and pale, otherwise normal. Kidneys normal.

## CASE 18.

L. C. L.; age, 49 years; nativity Norway. Admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., April 13, 1891; died April 18, 1891.

*History.*—Patient stated that four days previous to admission he had a severe chill and some pain on inspiration. On admission he had a hacking cough, expectorating sputum mixed with blood, also complained of headache; bowels regular; appetite poor; sleeps badly; dullness on percussion over right lower lobe anteriorly and posteriorly; respiratory sounds not distinct posteriorly. Bronchial breathing anteriorly and a few moist râles; friction sound also heard over right side. Patient sank gradually and died as above stated.

*Necropsy.*—Post-mortem examination made eight hours after death. *Rigor mortis* marked. Post-mortem lividity marked. Body well nourished. Heart filled with post-mortem clots, otherwise normal. Left lung adherent anteriorly; lower lobe congested, otherwise normal. Right lung firmly adherent all around,

thick layers of lymph covering the entire surface of the lung. Upper lobe deeply congested; lower lobe in condition of gray hepatization. Liver normal in size; was deeply congested. Spleen normal in appearance. Kidneys apparently normal.

## CASE 19.

W. W.; age 28 years; nativity, Norway; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., February 9, 1891; died February 26, 1891.

*History.*—Patient stated that for six months previous to admission he was unable to retain food, vomiting immediately after eating. Several days before admission had pain in stomach, appetite was good, bowels regular, slept badly. He also complained of slight pain in right side. Patient was put on treatment and improved; retained his food and said that he “felt much better.” Five days after admission, the 14th of February, patient complained of some pain in right side. Coughed a great deal, no expectoration. Temperature,  $40^{\circ}\text{C}$ . Auscultation revealed crepitant râles over right lower lobe, also bronchial breathing was heard over lower portion of right lung, anteriorly and posteriorly. Two days afterwards the disease had extended throughout the right lung, also to the upper lobe of left lung. Patient coughed a great deal, no expectoration; temperature remained at  $40^{\circ}\text{C}$ ., occasionally going to  $40\frac{2}{3}^{\circ}\text{C}$ .; 22d, temperature went down to  $37\frac{4}{5}^{\circ}\text{C}$ .; respiration was slower and much deeper; patient's condition was improved. He coughed a great deal, cough followed by mucopurulent expectoration; 24th evening, temperature  $39^{\circ}\text{C}$ ., was restless all night; 26th, condition was much worse, bubbling râles heard all over chest; patient complained of tenderness in right iliac fossa. Patient sank steadily, dying February 26, 1891, 9:55 o'clock a. m.

*Necropsy.*—Post-mortem examination was made twenty-eight hours after death. *Rigor mortis* marked. Post-mortem lividity marked; body fairly well nourished. Left lung examined; was congested; on section mucopurulent matter exuded throughout the lung. Right lung examined; was adherent posteriorly to chest wall, also fibrinous deposit over posterior surface; the upper lobe and part of the middle lobe were consolidated; on section mucopurulent matter exuded throughout the lung. Heart examined; right ventricle contained an ante-mortem clot, otherwise the heart was normal. Liver examined; was found to be normal. Spleen, left kidney and right kidney were normal.

## CASE 20.

O. S.; age, 60 years; nativity, Germany; admitted to U. S. Marine Hospital, San Francisco, Cal., February 16, 1891; died February 20, 1891.

*History.*—This patient when admitted was in such an extremely low condition that a thorough examination was impossible. His symptoms were rapid and shallow breathing, high temperature with delirium and pain in the right side. On examination coarse râles were heard over both lungs anteriorly. Bronchial breathing, with slight dullness over the lower part of right lung.

*Necropsy (twenty-four hours after death).*—*Rigor mortis* well marked, general nourishment good. The pericardial sac contained about two ounces of a bloody fluid; valves of heart normal; left ventricle slightly dilated and contained an ante-mortem clot, which extended into the aorta. The walls were 1.5 cm. in thickness. The right ventricle was also somewhat dilated, its walls were 5 cm. in thickness. The ascending portion of the arch of aorta was dilated and presented several spots of atheromatous degeneration. Both lungs were very much congested. The central portion posteriorly of the right and the lower portion posteriorly of the left were consolidated from catarrhal pneumonia. Weight of the left lung, 1,120 grams; right lung, 1,150 grams. Intestines distended and slightly adherent, with deposit of fibrin. The abdominal cavity contained a considerable



quantity of a purulent fluid. The liver was of a pale brownish-yellow color, and covered with nodules. The cut surface was of a yellow color with large tracts of fibrous tissue extending through it. The organ was very much atrophied; weight, 1,450 grams. Both kidneys were friable and in a state of fatty degeneration: weight of left kidney, 190 grams; right kidney, 200 grams. The spleen weighed 750 grams, and was very much enlarged, the parenchyma being firm and pale. The stomach presented anteriorly, near the pylorus, a circular spot about 3 inches in diameter, which was very much congested. Brain and cord not examined.

## CASE 21.

C. T.; age, 49 years; nativity, Ireland: admitted to marine ward, Mercy Hospital, Pittsburg, Pa., May 16, 1891; died May 21, 1891.

*History.*—A spare, debilitated subject, and a victim of dipsomania. Has been drinking for past two weeks, during which time he has taken scarcely any food and slept out doors when nights were cold and damp. On admission the following was noted: Skin moist and clammy, tongue heavily coated, persistent nausea and vomiting of viscid mucous and bilious matter. Tenderness at the epigastrium, anorexia and intense thirst. Lancinating pain in region of right nipple, aggravated by cough and deep inspiration. Respirations, 33 per minute. Dry cough. Temperature, 39.4 C.; pulse, 110. Percussion note slightly impaired, and a creaking friction sound is heard on right side accompanying the respiratory movements. The above symptoms continued; pneumonia rapidly supervened, prostration became more pronounced, cardiac action greatly embarrassed, and death closed the scene on the sixth day after admission.

*Necropsy (eighteen hours after death).*—Height, 5 feet, 7 inches; post-mortem lividity slight. *Rigor mortis*, marked; general nourishment, poor; pupils, normal. Heart weighed (after opening) 320 grams, flabby with fatty degeneration; left ventricle dilated and wall thinned. Large ante-mortem clot extending from right auricle to ventricle into pulmonary artery, and from left auricle and ventricle to aorta: valve competent. Arch of aorta dilated (fusiform) and contains calcareous deposits. Lungs: Right, weight 1,750 grams; shows red hepatization. The elasticity is destroyed; the color, density, and general appearance resembles the cut surface of a section of the liver. Right pleural cavity obliterated by firm adhesions of parietal and visceral pleuræ. Left lung, weight, 770 grams; hyperæmia shows passive congestion. Left pleura normal. Abdominal distention peritoneum normal. Stomach shows catarrhal inflammation of mucous membrane more marked at some points than at others; tissue soft. Intestines distorted with gas; otherwise normal. Liver, atrophic degeneration; tissue soft and friable, of dull color, and the surface smooth; weight, 1,840 grams. Gall bladder and ducts, normal. Kidneys, left, weight 210 grams; right, weight 195 grams, are congested. Spleen, weight 135 grams, slightly congested.

## CASE 22.

A. M.: age, 49 years; nativity, New York; admitted to Marine Hospital, Stapleton, Staten Island, New York, May 2, 1891; died May 6, 1891.

*History.*—Patient stated that he contracted a severe cold four days previous to admission, following a debauch. He had a chill followed by fever, pain in chest and extremities, and headache. On admission the patient had a cough with slight expectoration; bowels constipated, appetite good. Physical signs: Harsh respiration at apex of left lung. Further examination revealed pneumonia of right lung. Patient grew weaker gradually, dying on date above mentioned.

*Necropsy.*—Post-mortem examination was made five hours after death. *Rigor mortis* marked; post-mortem, lividity marked; left lung, lower lobe in condition

of red hepatization; right lung, lobes agglutinated, lower lobe in condition of red hepatization; heart, normal; liver, cirrhotic and fatty; spleen, pultaceous; left kidney was apparently granular; right kidney was apparently in same condition as the left.

#### ABSCESS OF LUNG—EMPYEMA.

R. T.; age, 47 years; nativity, Germany; admitted to U. S. Marine Hospital, Detroit, Mich., April 29, 1890.

*History.*—Illness began three months before admission; was under treatment at Saginaw for pneumonia and transferred from that station to this port. Said his illness commenced with a cough, bloody expectoration, and night sweats. Examination indicated abscess of lung and empyema. Fluctuation was detected at a point and anterior to left nipple and a large quantity of pus was evacuated. Thoracentesis was afterwards performed by use of Allen's pump, posterior to the axillary line; 650 c. c. purulent matter was removed first time, and that operation was repeated at an interval of ten days, when a less quantity was removed. There was, however, a continuous discharge from the original opening near the nipple. Allen's pump was used a third time, but no pus was found. Patient felt much better, and since first operation was able to lie down, which he had not been able to do for several weeks before. The expectoration continued profuse and purulent. At the last operation patient almost succumbed from the anæsthetic (chloroform), and he declined further operative procedure, hence no permanent opening was established other than the one originally made near the nipple. Patient rested fairly well and seemed to improve until a few days before he died. He grew suddenly worse, had a severe diarrhea, and died from exhaustion.

*Necropsy (seven hours after death).*—Body that of small-sized man much emaciated. Post-mortem, lividity moderate; *rigor mortis*, slight. The left pleural cavity contained a considerable quantity of purulent matter, and was divided by firmly organized bands of lymph into several compartments. The left lung was pushed into the upper portion of the cavity, was shriveled down to about the size of a man's fist, and was so firmly bound to the upper chest wall that it was impossible to separate it without the use of the knife. The right lung was also adherent from an old pleurisy. The pericardium was adherent to the chest wall, but the heart itself was apparently not diseased. Weight of heart, 285 grams, right lung weighed 387 grams, the liver weighed 1,970 grams, left kidney weighed 187 grams, congested; right kidney, 172 grams, pale; spleen, 410 grams, firm and containing a deposit of calcareous matter on outer surface.

#### GANGRENE OF LUNGS—ANEURISM OF THORACIC AORTA.

H. W. C.; age, 36 years; nativity, Pennsylvania; admitted to U. S. Marine Hospital, Detroit, Mich., November 12, 1891; died January 14, 1891.

*History.*—He said his illness began only a few days before; complained of pain in chest and between shoulders; had some cough, hoarseness, and accelerated breathing. The sputum was for the most part catarrhal, but emitted an extremely fetid odor. Dullness on percussion over left apex, and signs of circumscribed destruction of lung tissue gradually supervened. The sputum became more abundant, purulent, and was at times of a greenish-brownish color and continually fetid. The extreme difficulty of breathing as the disease progressed seemed out of proportion, however, to the extent of lung tissue involved. The symptoms were essentially those of stenosis of trachea and bronchi. There was only slight movement of the larynx, and the breathing was of whistling, wheez-



ing character; the skin was bathed in perspiration, and there was constant dyspnoea. Acute exacerbations occurred not unlike severe attacks of asthma, and patient was thought to be dying on several occasions before life ended. The cough, especially during the exacerbations, was of a remarkable stridulous, crowing character.

*Necropsy (seven hours after death).—Rigor mortis moderate.* Extremities slightly oedematous. Heart weighed 350 grams; pericardial sac was distended with fluid (500 c. c.); valves competent. An aneurism sacculated and filled with clots was found, having its origin in an opening about the size of a quarter of a dollar at the junction of the ascending and transverse aorta, and expanding to the size of a man's fist. The membrane of the trachea was of a dark red color and was somewhat thickened; oedematous, but there was apparently no oedema of glottis. The right lung weighed 612 grams, was adherent, and contained a cavity about the size of a pigeon's egg in upper lobe, surrounded by marked congestion. The left lung weighed 612 grams, was more adherent than the right, the adhesions being apparently of recent formation, and the upper lobe contained a cavity about the size of a hen's egg; edges were somewhat indurated, and the surrounding parts were deeply congested and oedematous. The right kidney weighed 247 grams; the left 187 grams, and both were extremely congested. The spleen weighed 260 grams; was somewhat softened. The liver weighed 1,562 grams.

## CHRONIC PNEUMONIA PHTHISIS.

### CASE 1.

G. A. P.; age, 25 years; nativity, Maine; admitted to marine ward, Jefferson Hospital, Philadelphia, Pa., July 5, 1890; died October 13, 1890, at 2.45 p. m.

*History.*—He was admitted with tubercular disease of both lungs. He was emaciated, had frequent moist cough with free expectoration of purulent matter, rapid respiration, night sweats, and pain in right side of chest. His temperature ranged between 37.2 and 38.6°. He was given nutritious food, tonics, stimulants, and Ol. Morrhuæ.

*Necropsy.*—The apexes of both lungs were bound firmly down by adhesions. Numerous tubercles were found throughout both lungs; also several cavities of various sizes in apexes of both lungs. Tubercular deposits were also observed in the mesenteric glands.

### CASE 2.

P. H.; age, 28 years; nativity, Ireland; admitted to marine ward, Jefferson Hospital, Philadelphia, Pa., September 2, 1890; died November 13, 1890, at 11.45 a. m.

*History.*—When admitted he had pleurisy, and was discharged cured of that disease November 3, 1890, on which date he was readmitted with tubercular disease of left lung. He had persistent cough, followed by expectoration, pain in left chest, and rapid respiration. His temperature varied from 37.8° to 39°. The left lung presented the physical signs of tubercular disease. His appetite was poor, and he was given nutritious food, tonics, extract of malt, and whisky. The medical treatment was directed chiefly towards the relief of cough and pain.

*Necropsy (four hours after death).—Rigor mortis present;* abdominal viscera normal; visceral and parietal layers of left pleura bound firmly together throughout; also a few adhesions at apex of right pleura. Large deposits of tubercles were found in both lungs, and several cavities in apex of left lung; also spots of caseous degeneration in apex of right lung.

## CASE 3.

D. D.; age, 39 years; nativity, Ireland; admitted to marine ward, Jefferson Hospital, Philadelphia, Pa., August 15, 1890; died October 4, 1890, at 11:30 a. m.

*History.*—When admitted he had suppurating lymphatic glands of neck, and was discharged cured of that disease September 29, 1890, on which date he was readmitted with tubercular disease of lungs. He was much emaciated, and had profuse diarrhea, tenderness over abdomen, pains in left chest, night sweats, persistent dry cough, and sinking of both sides of chest. Both lungs presented the physical signs of tubercular disease. His appetite was poor, and he was placed on nutritious diet, with tonics, stimulants, and astringents.

*Necropsy.*—Tubercles were scattered freely over surface of intestines. The visceral and parietal layers of peritoneum were adherent to each other and the intestines bound together in one mass, very difficult to separate. The left kidney was bound down by adhesions. Heart: the right side was distended and relaxed; the left side firmly contracted. The visceral and parietal layers of both pleura were bound together. The deposits of tubercle in lung structure were numerous and large.

## EMPYEMA.

W. T.; age, 21; nativity, Missouri; admitted to the U. S. Marine Hospital, Cairo, Ill., February 3, 1891; died May 24, 1891.

*History.*—Patient came in with pneumonia on left side; later on pleurisy appeared on the opposite side, leading on to empyema. One inch of the rib was exsected, and a drainage tube introduced, through which the pleural cavity was irrigated with a 1 to 2,000 bichloride solution daily. For a time after the operation he improved, then rapidly sank.

*Necropsy (nine and a half hours after death).*—*Rigor mortis* marked; general nourishment poor. Heart weighed 300 grams. Pericardial sac contained 100 c. c. fluid; the valves were apparently competent. Other vessels normal. Thorax, larynx, and trachea normal. Left lung weighed 300 grams; the pleural cavity was nearly obliterated by adhesion. The right lung weighed 150 grams. The pleural cavity contained 100 c. c. of pus. The peritoneal cavity contained 150 c. c. fluid; slight peritonitis and adhesion of organs. Gastro-intestinal tract normal. Liver weighed 1,600 grams; normal. Gall bladder and ducts normal. Left kidney weighed 140 grams; right 140 grams; normal. Pelvis, ureters, bladder, urethra, and prostate normal. Spleen weighed 200 grams; normal. Brain and spinal cord normal.

## PHARYNGITIS.

W. W.; age, 54; nativity, Norway; admitted to the U. S. Marine Hospital, San Francisco, Cal., July 31, 1890; died August 27, 1890.

*History.*—On admission the patient was suffering with a severe inflammation of the pharynx, which continued throughout his entire illness, extending at the beginning of the third week to the larynx. He also developed symptoms of typhoid fever, viz: Intestinal hemorrhage, lenticular rose-colored spots, enlargement of liver, spleen, etc. On August 25 laryngeal symptoms increased in severity. An examination with the laryngoscope showed swelling and congestion of the mucous membrane of the larynx. Dyspnoea becoming alarming, tracheotomy was performed, but did not save him.

*Necropsy (sixteen hours after death).*—*Rigor mortis* slight. The examination of the larynx revealed an abscess on both sides above the vocal cords, both arytenoid cartilages being necrosed. The lungs were congested posteriorly, and old pleuritic adhesions were found on right side. Liver slightly enlarged and gall



bladder distended with bile. Spleen enlarged. Kidneys congested. The lower part of ileum, ileo-cæcal valve, and cæcum were very badly ulcerated, the mucous membrane being almost gangrenous. Peyer's patches ulcerated and the mesenteric glands enlarged.

#### CATARRHAL INFLAMMATION OF INTESTINES AND COLITIS.

A. J. T.; colored; age, 34; a native of Missouri; was admitted to the U. S. Marine Hospital, St. Louis, Mo., October 28, 1890.

*History.*—Has had a diarrhea three weeks; stool about every twenty minutes. Pain in abdomen and tenderness around the umbilicus. Stools not bloody. Under treatment the number of stools was reduced to eight or ten in twenty-four hours. Pain in left lumbar region on November 5, 1890. Pulse rapid and feeble. He died on the 12th of November, 1890.

*Necropsy.*—The colon was attached by recent adhesions to the anterior wall of the abdomen. These adhesions were at the sigmoid flexure of the colon. When these adhesions were carefully separated there was found a perforation of the descending colon. The mucous surface of the small intestine for 15 cm. above the ileo-cæsal valve was ulcerated in many places. Similar ulcers, but of larger size, were located in the colon. There was scarcely a normal piece of mucous membrane to be found in the colon.

#### ENTERITIS AND TUBERCLE OF KIDNEYS.

J. T.; age, 39 years; nativity, New York; admitted to U. S. Marine Hospital, Detroit, Mich., January 12, 1891; died January 26, 1891.

*History.*—His illness began two weeks before with chills and fever. Fever continued three or four days after admission and then subsided; the temperature was subnormal on one or two occasions. Had weak pulse, considerable diarrhea, and was anæmic. Did not complain of pain and there was no tympanitis, but the stomach was irritable and vomiting frequent. Had severe hiccough for two days, but this ceased twenty-four hours before he died.

*Necropsy (eight hours after death).*—*Rigor mortis* moderate. Adhesions throughout left pleural cavity and lung much reduced in size from old pleurisy. Pericardium contained 40 c. c. straw-colored fluid. No adhesions of right pleura. The intestinal mucous membrane from pylorus to rectum was inflamed (enteritis), most marked in small intestine. Kidneys were enlarged and the right was studded with tubercles on its surface and showed spots of induration extending through cortical substance. The capsule was adherent, and tubercles and cheesy deposits became very distinct upon its removal. Spleen was greatly enlarged; left lung weighed 267 grams; right lung weighed 302 grams; liver weighed 1,845 grams; left kidney weighed 280 grams; right kidney weighed 280 grams; spleen weighed 448 grams.

#### PERFORATING APPENDICITIS—PURULENT PERITONITIS.

R. M.; age, 28 years; nativity, Pennsylvania; was admitted to the marine division of the St. Francis Xavier Infirmary, at Charleston, S. C., on December 10, and died on December 14, 1890.

*History.*—Of full habits of life; some constipation, and on the preceding day an attack of acute pain in abdomen, with vomiting and purging; controlled by laudanum. On admission, he said he felt better, not so much pain; bowels closed; but a feeling of uneasiness and excitement. Tongue furred; pulse, 100; temperature, 38.5° C. Ordered a laxative of calomel; milk diet, with a little stimulant, and opium if pain returned. Abdomen, tender generally; not tympanitic; no

localized pain; no "McBurney point." In the left inguinal canal and in scrotum was an omental hernia, which he declared was congenital. There was no pain about it; no symptom that it was strangulated. It was kept under notice. At this time opinion was divided; it was best to await developments. During the next two days the bowel remained open; temperature ranged nearly normal, but the circulation remained rapid and depressed. The man said he felt better. Some tympany on the morning of the 13th. Orders were given at this visit to have everything ready for an operation at a moment's notice, and the resident directed to report the condition if there was no improvement, or an increase of depression. Hiccough had come on; temperature had reached 39.5° C., and marked depression during the night. At 9 a. m. (14th) his condition was critical; temperature, 38° C.; pulse, 120. The omental hernia was ligated and excised. On returning its stump into the cavity, a quantity of sero-purulent fluid drained away; there was no evidence of recent inflammatory changes as far as the finger could explore. The odor of the fluid was convincing as to the condition present; but it was impossible to proceed further, the patient was so collapsed. A large aseptic drainage tube was introduced and the cavity thoroughly cleansed with hot water, recently boiled. Reaction did not set in. No further operation was attempted. Death four hours after.

*Necropsy.*—Body of a large and fully nourished adult; cadaveric rigidity most marked. Abdomen swollen (post-mortem); on being opened there was found a small quantity of the sero-purulent fluid; omental stump covered with lymph; no bleeding; some new lymph about the intestines, lightly binding them together. Omentum only slightly bound down. The appendix was looked for and found freely movable in its position, with no trace of adhesion to neighboring structures. It was absolutely free in the cavity, no limiting lymph at any point, no excess of pus forming the ordinary abscess. Its mesentery was extensive and infiltrated with fat; it looked like a miniature base-ball bat, bulging at its fluid extremity, and supported by its fatty mesentery; 4 cm. from its junction with the cæcum was an ulceration and rupture, the edges ragged and necrotic; from this opening oozed pus. The distal dilation was from retained purulent secretion below the obstruction. The obstructing body was not found.

*Remarks.*—Here was an acute peritonitis due to rupture of a chronic abscess of the appendix. It was complicated by an old, if not congenital, epiplocele, its symptoms at no time presenting the familiar local character, owing, it is thought, to the fact that, there having been no adhesions, the appendix eluded the finger as it pressed upon it. From the epiplocele it was possible to have had all the symptoms present, save that there was no local sign of trouble at the ring.

The delay was too great, and yet operation was done as early as the severest symptoms supervened. It can only confirm the opinion, so ably advanced and refuted, that in early operation lies the greatest safety.

#### ULCERATIVE INFLAMMATION APPENDIX VERMIFORMIS.

C. L.; age, 22 years; nativity, Sweden; was admitted to the Marine Hospital, New York, August 17, 1890; died August 20, 1890.

*History.*—Patient was an immigrant and was taken sick on board the vessel bringing him to this port. He said that his general health, with the exception of being subject to chills and fever, was good. On the voyage he was seasick, and for a week previous to his admission to the hospital he had vomited frequently. On admission he was in a condition of great prostration, vomiting constantly a greenish yellow fluid and having some diarrhea. His abdomen was tympanitic, tender, and painful. For some hours before death patient was delirious. His temperature ranged from 39½ to 41½°.



*Necropsy (sixteen hours after death).—Rigor mortis* marked. Old adhesions of right and left pleuræ to lungs. Lungs normal, with exception of hypostatic congestion of lower lobes. Heart normal. Liver strongly adherent to surrounding tissues. Spleen dark in color and soft. Kidneys normal. Peritoneum much inflamed and marked by abundant deposit of lymph. Intestines generally inflamed and agglutinated. Fœcal matter in peritoneal cavity. The appendix vermiformis almost gangrenous as well as the adjacent tissues. On section a hard, round substance, in size and appearance resembling a cherry stone, was found. That portion of the colon contiguous to the appendix presented a large perforation. The ileum for 7 or 8 inches from the valve was nearly gangrenous.

#### ENTEROCOLITIS.

W. H. M.; age, 47; nativity, Pennsylvania; admitted to marine ward, St. Mary's Infirmary, Galveston, Tex., December 3, 1890; died, December 13, 1890.

*History.*—Patient had been a hard drinker for years. On admission was suffering from diarrhea. Was quite feeble; circulation poor; extremities blue and cold; gradually sank from exhaustion until he died.

*Necropsy (two and a half hours after death).—Rigor mortis* poorly marked. Body emaciated. Heart: febrile muscular degeneration; valves, normal; atheromatous patches in aorta. Chronic pneumonia in lower lobe of right lung; left, normal. Liver, small, with febrile degeneration. Kidneys, markings distinct; chronic nephritis. Small intestines and colon inflamed and congested; ulcers near cæcum, both in small and large intestines. Other organs not examined.

#### FISTULA IN ANO—STRICTURE OF RECTUM.

A. J.; age, 16 years; nativity, Louisiana; was admitted to U. S. Marine Hospital, New Orleans, La., December 6; died December 19, 1890.

*History.*—Patient had been troubled for six months or more with fistula, and with, at times, an irritative diarrhea. He was badly nourished and quite feeble. A tonic and supporting treatment was begun, under which he gained rapidly in flesh and strength. Yielding to his urgency, he was prepared for operation and two of the fistulæ tied under the alcohol, chloroform, and ether mixture. A tight stricture of the rectum, scarcely admitting the tip of the fore-finger, was found immediately above the internal sphincter and gently dilated. Rectum washed out with solution of bichloride of mercury, 1 to 10,000. Patient rallied well and was comfortable and apparently improving. Hiccough, with a fetid diarrhea, set in within twenty-four hours. He refused food and medicine, unless urged, became comatose, and died of heart failure.

*Necropsy (twenty-four hours after death).*—Body that of a negro lad, poorly nourished. *Rigor mortis* well marked. Heart: Weight, 205 gm.; right ventricle somewhat hypertrophied; valves competent. Lungs: Left, weight 340 grams, normal: pleural cavity obliterated: right, weight 320 grams, congested pleural cavity obliterated. Liver: Weight, 890 grams. Spleen: Weight, 90 grams, congested. The anal extremity of the rectum was enveloped for its final 10 cm. with a dense reticulated growth of connective tissue, the interstices filled with yellow fat. Under the microscope no evidence of syphilis or cancer could be detected in it.

#### CIRRHOSIS OF THE LIVER.

##### CASE 1.

P. F.; white; age, 34 years; native of Indiana; was admitted to the marine ward of Evansville City Hospital, June 4, 1890; died July 13, 1890.

*History.* On admission to hospital the patient was suffering intensely with distention of the abdomen from gas and fluid (ascites). He gave the usual history

of cirrhosis of the liver as to causation and symptoms, viz, had been a steady drinker of alcoholics for years, and had had several attacks of inflammation of the stomach, for one of which he had been admitted to hospital in July, 1889. His appetite became capricious and finally left him almost entirely, so that food excited disgust. Patient could remember no hemorrhage from stomach or bowels, but he vomited blood once while in the hospital. The abdominal veins were enlarged. There were signs of acute pleurisy of the left side. The usual treatment with nitro-muriatic acid, also iodide of potassium, was ineffectual, the patient growing weaker and was unconscious during the four days preceding death.

*Necropsy.*—*Rigor mortis* moderate. General nourishment fair; dependent parts livid; skin, especially of face, of earthy hue, inclined to yellow. The peritoneal cavity contained about 3,000 c. c. of reddish serum. The liver was yellowish or tawny in color, about two-thirds the normal size, and presented small projections ("hobnails") on its surface, especially marked towards the anterior border. The liver tissue was tough under the knife, and the finger could be forced into it only with great difficulty. The gall-bladder was collapsed and contained little bile. The spleen was at least three times its normal size, and extremely friable. The kidneys were about normal in size, somewhat congested, and were thought to contain an excessive amount of connective tissue. No other organs were examined.

#### CASE 2.

P. R.; age, 46 years; nativity, North Carolina; admitted to the U. S. Marine Hospital, New Orleans, La., August 8, 1890; died September 5, 1890.

*History.*—The patient applied for readmission, being in distress on account of an enormously distended abdomen. The respirations were oppressed and the heart's action weak but regular. Legs swollen and face emaciated. Quantity of urine small. Bowels constipated. Elaterin, .01 gm., was given twice during the night, with moderate cathartic action. On the 10th the abdomen measured 125 cm. in circumference. Tapping was performed, and 20,350 c. c. of chylous fluid was drawn off. Digitalis and citrate of potassium were given. The specific gravity of the ascitic fluid was 1.006, and it contained a moderate amount of albumen. The urine contained no albumen, and its specific gravity was 1.026. Elaterin in .06 g. doses was given from time to time; also a tonic of the tinctura ferri chloridi. On the 13th, 16,000 c. c. of fluid were removed from abdomen by tapping. Patient gradually getting weaker and more emaciated. He was tapped again on the 23d, and 16,000 c. c. of fluid removed.

*Necropsy (twelve hours after death).*—Body that of a well-developed negro man, poorly nourished. The lungs were congested and hepatized. The left weighed 505 g., the right 640 g. The abdomen contained some ascitic and bloody fluid. The peritoneum was congested and showed signs of chronic inflammation. The liver was pale, weighed 1,130 g., nodulated, presenting a singularly eroded appearance, and creaking under the knife.

#### CASE 3.

M. F.; age, 67 years; born in Ireland; admitted to the U. S. Marine Hospital, Chicago, Ill., October 30, 1890; died February 27, 1891.

*History.*—Had been an excessive drinker for many years. Suffered an attack of acute hepatitis some few years ago. Circumference of abdomen has been increasing for several months. Constipation; urine scanty and high colored. When admitted patient presented most of usual sign of cirrhosis of liver. Exact area of hepatic dullness could not be determined owing to the fact that abdomen was greatly distended with ascitic fluid; there was no icterus. Treatment consisted



of depletion per intestines, bladder, and skin, but the obstruction to the portal circulation could not be overcome. For the few weeks immediately prior to his death he became extremely lethargic and at times nearly comatose: frequently he was troubled with hallucinations and imagined himself elsewhere; he occasionally got out of his bed and wandered about the ward, returning to some other bed. Involuntary evacuations of fæces and urine appeared about three weeks prior to death. On February 24 he became entirely comatose and remained so until the 27th instant, when he died.

*Necropsy (twelve hours post mortem).*—*Rigor mortis* marked; hypostatic congestion; bed sores over each ischiatic tuberosity and each scapular spine. Body moderately well nourished; abdomen greatly distended by effused serum, of which there was about 8 liters. Liver was found adherent by organized bands of lymph to stomach, duodenum, diaphragm, and abdominal parietes; it was much contracted and consisted apparently of many nodular masses bound together—the characteristic “hob-nailed” liver; its weight, 900 g. No gross changes were found in either kidney.

### ABSCESS OF LIVER.

#### CASE 1.

H. E.; age, 40; nativity, United States; was admitted to the U. S. Marine Hospital, Chelsea, Mass., September 16, 1890, and died on October 11, 1890.

*History.*—On admission patient looked cachectic and emaciated. Was taken sick four days before admission with a chill and fever, and pain in left side. On examination a tumor was discovered extending from the fifth to and below twelfth rib on left side, extending to median line in front; urine normal. He had several irregular chills, with profuse sweating. Great tenderness over left side. Abscess of spleen was diagnosed and an incision was made into the spleen at tenth intercostal space, evacuating about 250 c. c. of pus. This operation was done on September 18. For four or five days afterwards he improved very much; temperature nearly normal. The abscess cavity grew rapidly smaller. On the 22d he had another chill, followed by profuse sweating. The spleen was aspirated twice, but no pus was found. A few days before his death—about October 1—a decided enlargement of the liver was detected, but he complained of no pain on right side, nor did he at any time call attention by complaints or otherwise to this region.

*Necropsy (sixteen hours after death).*—Beyond slight thickening of mitral valves the heart was normal; weight, 250 grams. Pleuræ over both lungs adherent; lungs normal; left lung weighed 830 grams; right, 970; some œdema. Liver: Weight, 1,960 grams. Strong adhesion to colon and spleen, also to right kidney; infiltrated with pus. Several large pus cavities and some nodules. Spleen adherent on all sides, especially to stomach and pancreas; weight, 710 grams. The cavity opened in spleen at the tenth intercostal space; was connected with the largest abscess in the liver, and both glands were intimately adherent. The pus from the abscess of the liver was discharged through the spleen.

#### CASE 2.

C. S.; age, 48 years; nativity, Germany; admitted to marine ward, Jefferson Hospital, Philadelphia, Pa., October 23, 1890; died November 19, 1890, at 10:45 a. m.

*History.*—The patient was anæmic and emaciated. He had constipation, slight jaundice, dry cough, night sweats, nausea, prominent thoracic and abdominal veins, ascites, marked œdema on right side over liver, fever simulating quartan intermittent, rapid respiration, and loss of appetite. On percussion marked dull-

ness was found at the second intercostal space, right side. This dullness extended well down into the right lumbar region. No respiratory murmur could be detected below the second intercostal space, right side. A hypodermatic needle was twice introduced at the sixth intercostal space, right side, without result. On the morning of November 19, 1890, a canula was introduced and 473 c. c. of yellowish inodorous pus obtained. The medical treatment consisted chiefly of tonics and cholagogue cathartics.

*Necropsy.*—Abdominal cavity filled with a clear, yellowish, inodorous fluid. Right lung: Superior lobe normal; middle and inferior lobes collapsed and bound by firm adhesions to under surface of liver. Liver: Enormous enlargement, extending towards the left to a perpendicular line let fall from the left nipple, extending upward to the lower border of the second rib, right side, extending down into the abdominal cavity, about 4 inches lower than normal. In the right lobe there was a large abscess cavity containing about 473 cm<sup>3</sup> of thick, yellowish, inodorous pus. The liver was bound by firm adhesions through the diaphragm and right pleura to the middle and inferior lobes of right lung. Posterior to the liver was an abscess of one of the retroperitoneal glands, containing about 118 cm<sup>3</sup> of pus. Gall bladder distended with bile; ductus communis chole-dochus normal.

#### CASE 3.

J. B.; age, 51; native of Austria; admitted to U. S. Marine Hospital, Memphis, Tenn., November 10, 1890; died December 1, 1890.

*History.*—He had had fever and diarrhoea for two weeks prior to admission; complained of moderate pain in hepatic region; area of hepatic dullness not enlarged. Fever persisted for ten days and then disappeared; meantime an indistinct swelling appeared at lower border of liver, together with a moderate amount of ascites and jaundice. The tumor gradually increased in size and became painful. An exploratory aspiration brought away a small quantity of pus. An incision was made through the abdominal wall, just below the costal border, and the peritoneum incised to the extent of 2 cm. A flow of pus and serum showed that both abscess and peritoneal cavity had been opened. After the escape of a large quantity of pus a drainage tube was inserted into the abscess and a sublimate dressing applied. Patient gradually sank, and died four days after the operation.

*Necropsy.*—*Rigor mortis* slight; body emaciated. The right lobe of the liver contained two large abscesses (one of which had been opened), and innumerable small ones. The mucous coat of the colon was ulcerated. The abdominal cavity contained a considerable quantity of serum.

#### CASE 4.

T. H.; age, 30 years; nativity, Ohio; admitted to Cleveland City Hospital January 2, 1891; died February 21.

*History.*—Sick two weeks before admission. At first sharp abdominal pain; bowels constipated. Following day vomited once. A few days later a chill. On admission he complained of headache, intermittent in character; anorexia; tenderness about umbilicus, and dyspnoea on exertion. Cachectic appearance, not jaundiced, moderate continued fever, some tympanites, urine normal.

*January 23.*—Has felt better lately; appetite improved, no tenderness in epigastrium. Temperature, 37° C. in morning; 37.4° in evening. Constipation. Insomnia. Condition worse after this; typhoid state; melancholia, slight delirium, tympanites, tongue coated a dirty brown and fissured, pulse dicrotic, no enlargement of liver detected. Temperature higher,



*January 27, 28, 29.*—A. m., 39° C.; p. m., 40°; later, 37.5° to 39°; pulse, 80 to 95.

*February 17.*—Shooting pain in right axilla and abdomen and a slight hacking cough. Examination of chest negative.

*February 18.*—Temperature: a. m., 37.2° C.; p. m., 40.2; pulse, 100.

*February 19.*—Temperature: a. m., 39° C.; p. m., 39.2; pulse, 108.

*February 20.*—Temperature: a. m., 39° C.; p. m., 37; pulse, 110 to 120.

No chill on either of these days. Increased pain in epigastrium and left hypochondrium. Hepatic abscess must have been slowly discharging into left pleural sac last two days.

*Necropsy (twenty-four hours after death).*—Lividity and *rigor mortis* marked. Body emaciated. Pericardial sac contained 3 ounces clear fluid. Heart normal. Left pleura, no adhesions. Left lung normal, crepitant, floats in water. Right pleural sac filled with pus. Right lung compressed into upper part of thorax, not crepitant, will not float. Peritoneum, adhesion of liver to diaphragm and of vermiform appendix to cæcum. Stomach dilated, filled with sulphuretted gas. A diverticulum was noticed 0.1 meter above the cæcal valve. Peyer's patches swollen, shaven beard appearance; one ulcer in lower jejunum. The vermiform appendix was 0.125 m. long, impervious to probe from a constriction at neck filled with mucus. Liver large; paler than normal; lobules in section well defined; abscess cavity just below upper surface of left lobe of size sufficient to hold 500 c. c., and several quite small abscesses scattered around it; the large cavity was connected with the left pleural sac by a small opening. Gall bladder full of thick, dark, granular looking fluid. Kidneys large, pale externally, hyperæmic on section. Spleen slightly enlarged.

#### CASE 5.

H. T.; age, 27; a native of Missouri; was admitted to the U. S. Marine Hospital March 28, 1891; died April 18, 1891.

*History.*—Severe pains in right hypochondrium, and tenderness to pressure; pains so great that has not been able to sleep without opiates for the last four months; very much emaciated; scarcely any tissue between skin and bones; there is a rise of temperature every evening; pain has lasted four months; ten or twelve stools daily, which were clay-colored and very offensive.

Physical examination showed liver enlarged, the lower margin being 10 cm. below border of ribs; fluctuation could not be detected on account of the extreme tenderness to the touch; aspiration showed pus in liver. An incision was made and 5 cm. of the ninth rib removed. The liver was found adherent to the diaphragm and abdominal walls. An incision was made into the liver and 2,500 c. c. of pus removed. The liver was washed out with solution of mercury bichloride. A drainage tube was inserted and an antiseptic dressing applied. The dressing had to be changed once, and often twice daily on account of the profuse discharge of pus, colored yellow by bile. After the operation his appetite improved, he had one stool a day, and his temperature remained normal.

*Necropsy.*—The right lobe of the liver had entirely disappeared; only a very thin section of necrotic hepatic tissue remained adherent to the capsule. The left lobe was normal. Other organs normal. The abscess followed dysentery.

#### CASE 6.

F. H.; age, 32 years: nativity, Louisiana; was admitted to the U. S. Marine Hospital, New Orleans, La., April 22, 1891; died May 3, 1891.

*History.*—Upon admission the patient gave a history of dysentery, having had from four to six stools a day, with pain in the abdomen and lower part of the chest for the past seven weeks. He had lost about 20 kilograms in weight, and

presented a very cadaveric appearance. The diarrhœa and pain continued during the time he was in the hospital, while the emaciation and cadaveric appearance increased. On May 1 he was discharged and re-admitted for abscess of the liver. From this time on he rapidly became weaker, and died May 3, 1891, at 2:55 p. m.

*Necropsy (thirty-five minutes after death).*—*Rigor mortis* was absent. The body was that of a white male adult, well developed, but very poorly nourished. There were three large ulcers in the descending colon, and the inflammatory process involved the whole thickness of the gut. The right lobe of the liver was the seat of an abscess, which contained 2,000 c. c. of pus. The liver, after the abscess had been evacuated, weighed 2,150 gms. The spleen was slate-colored. The other organs were normal. The brain and spinal cord were not examined.

#### PERFORATING ULCER GALL BLADDER—PERITONITIS—LAPAROTOMY—DEATH.

J. A. H.; age, 23 years; nativity, Finland; admitted to the U. S. Marine Hospital, San Francisco, Cal., January 7, 1891; died January 8, 1891.

*History.*—On January 4 he was seized with violent pains in the abdomen. This was followed on the next day by vomiting, which was very frequent and persistent. The last movement of the bowels had occurred on the first day of his sickness. The patient was not in a condition to give a clear account of himself. He had slept very little; was nearly exhausted from the continual effort at vomiting. The pulse was small and weak; temperature about normal. The matter vomited was quite fluid and greenish from the presence of bile. There was general tenderness over the abdomen, but this symptom was probably marked by the patient's blunted sensibilities. With a view to removing any impacted fæces that might cause obstruction, although no tumor could be demonstrated, several large warm-water injections per rectum were used, the patient being in the knee-elbow position. These, however, were negative in result, except the passage of a few clots of blood and mucus, and a very few scybalæ. As the vomiting persisted and the patient was rapidly failing, it was decided to make an exploratory laparotomy. With the usual antiseptic precautions an incision was made below the umbilicus in the median line sufficiently large to admit the hand. A small quantity of yellow pus escaped from the wound. The intestines were congested and dark colored. There were apparently few adhesions and no point of obstruction could be found. The wound was closed, drainage tubes being left in the lower portion. The patient's pulse during the operation was at times hardly perceptible at the wrist, but improved somewhat afterward. The vomiting began again after his reaction from the anæsthetic, and though stimulants were freely used he died seven hours after the operation.

*Necropsy (twelve hours after death).*—The intestines were fastened together by recent adhesions, being separated by slight exertion. The peritoneum was dark colored and the cavity contained a small amount of pus. In the gall bladder was a ragged ulcer, perforating its wall, about 1 cm. in diameter; this part was quite firmly adherent to the tissue around it, so that they were separated with some difficulty. The common bile duct was patent, but somewhat thickened.

#### CYST OF PANCREAS.

A. M.; age 56; colored; a native of Tennessee; was admitted to the U. S. Marine Hospital, St. Louis, Mo., August 11, 1890.

*History.*—Persistent diarrhœa, with pain in abdomen just above the umbilicus. Emaciation marked. The diarrhœa was persistent in spite of treatment. Just above the umbilicus and to the left of the median line is a well-marked pulsating tumor to be felt. Over this tumor is heard a well-marked double bruit. There



was some improvement in the diarrhœa with the treatment, but the emaciation increased and the patient died of inanition on the 29th of September.

*Necropsy*.—Showed a cyst of the pancreas. It was the size of a hen's egg, and occupied the head. The head of the pancreas was firmly attached to the under surface of the liver and small intestines. It was firmly held down upon the aorta. Hence the deception leading one to think it an aneurism of the abdominal aorta. All the other organs normal.

## PERITONITIS.

### CASE 1.

H. J.; age, 27 years; native of Germany; admitted to the U. S. Marine Hospital at Port Townsend, Wash., July 29, 1890; died July 30, 1890.

*History*.—Upon admission the following history was obtained. The patient had been treated for retention of urine from a medium sized stricture. Evacuation of the urine by *via naturæ*, had evidently failed, and two punctures between the umbilicus and symphysis pubis showed the use of a trocar and canula, with a resulting violent peritonitis. A whip bougie was readily introduced into the bladder and a small quantity of urine withdrawn. Active efforts to subdue inflammation were abortive, as the patient was in a state of collapse, and death occurred within twenty-four hours after admission.

*Necropsy*.—Body well nourished; *rigor mortis* fairly marked. Heart, lungs, liver, and spleen in good condition. First puncture of large trocar had evidently missed the bladder in an ascending direction and cut a small artery in passing through peritoneum. The connective tissue contained clotted blood to some extent. Intestines not injured by this traumatism. The second puncture of trocar had penetrated the bladder, with congested spot about point of entrance, the bladder being empty. Evidences of a general peritonitis everywhere present.

### CASE 2.

#### *Strangulated hernia.*

B. H. (colored); age, 24; native of Alabama; admitted to U. S. Marine Hospital, Memphis, Tenn., July 20, 1890; died July 24, 1890.

*History*.—A few days before his admission patient was kicked in the abdomen by a horse. The abdomen was painful and tender, especially in the epigastric region where the blow was received. There was likewise pain in the right side and auscultation disclosed the existence of acute pleurisy. Moderate doses of morphia relieved his pain and rendered him comfortable. On July 22, at 8 p. m., he was suddenly seized with agonizing pain in left inguinal region, accompanied by uncontrollable vomiting and hiccough. He was seen two hours later and examination disclosed a small bubonocoele at the external ring; under taxis a portion of the contents of tumor seemed to slip back. The symptoms were not relieved, however, and an operation was decided upon. At 12 p. m. the usual incision was made and the sac, a small and narrow but very thick one, isolated and opened. It was found to be empty. Having introduced the finger into the abdominal cavity to make sure of the complete reduction of the hernia, the operation was finished by ligating and excising the sac and suturing the pillars of the ring with catgut. The following morning patient was free from pain and seemed better. Toward evening, however, pain and vomiting returned, he became collapsed and died on the 24th.

*Necropsy*.—*Rigor mortis* marked. Body well nourished and muscular. Heart and lungs normal, except extensive fibrinous pleurisy affecting right side. Abdominal organs matted together by fibrinous exudations. In the right iliac fossa there

was a large collection of pus and serum, bathed in which was a portion of small intestine with a gangrenous spot as large as a nickel in its wall. In the center of the slough was a small perforation. The case is of interest as showing the brief space in which fatal damage may be done by strangulation in a narrow sac.

## CASE 3.

S. S. ; age, 30 years ; nativity, Chile ; admitted to the U. S. Marine Hospital, San Francisco, Cal., December 18, 1890 ; died December 19, 1890.

*History.*—This patient was admitted late in the afternoon in a moribund condition, and died that night. No diagnosis was made.

*Necropsy (twenty-four hours after death).*—Both lungs were firmly adherent to pleura and very much congested, especially the left one. Heart normal. Liver and intestines presented no abnormal conditions. Brain not examined.

## CASE 4.

J. H. ; age, 24 years ; nativity, Alaska ; admitted to the U. S. Marine Hospital, San Francisco, Cal., December 8, 1890. Diagnosis, peritonitis with ascites. Death, December 15, 1890.

*History.*—Symptoms, fever, stupor, and abdominal tenderness.

*Necropsy (twenty-four hours after death).*—On examining abdominal cavity, purulent peritonitis was found to exist. Pericardium contained a small amount of fluid. Heart and other organs normal.

## SUPPURATION LYMPH GLANDS, GROIN—PYAEMIA.

A. S. ; age, 35 years ; nativity, Norway ; admitted to the Marine Hospital, Stapleton, Staten Island, N. Y., February 2, 1891 ; died, April 6, 1891.

*History.*—Patient stated that an ulcer appeared on penis about two months previous to admission. Eight days previous to admission the lymphatic glands of groin on left side became swollen. He complained of pain in groin and back, also severe headache. Had no difficulty in voiding urine ; appetite poor ; bowels regular ; slept badly. One day after admission the affected glands were removed with antiseptic precautions. Day after operation temperature went up to 38° C. On March 12 abscess was discovered in the internal femoral region ; patient too weak for operation. April 4, abscess forming over sacrum. Patient's temperature remained at 38° C. mornings, with evening exacerbations. The last four days the patient sweated profusely. He gradually grew weaker, dying on date as above stated.

*Necropsy.*—Post-mortem examination was made fifteen hours after death. *Rigor mortis* marked. Post-mortem lividity marked. Body emaciated. Left lung adherent posteriorly ; congested ; otherwise normal. Right lung firmly adherent to all contiguous parts ; beginning pneumonia in upper part of lower lobe ; but lung hypostatically congested. Heart normal. Liver examined ; left lobe hyperæmic ; right lobe enlarged and in beginning stage of cirrhosis, also friable and hyperæmic. Spleen twice normal size, slaty blue in color ; on section was found pale and friable, one-half pultaceous. Left kidney paler than usual, otherwise normal. Right kidney same as left. Pus found in hip joint ; abscess found in lumbar region and gluteus muscle ; one large abscess in internal femoral region ; several small abscesses in leg, bone not diseased.



## TUBERCLE OF LYMPH GLANDS.

G. J.; age, 31 years; native of Sweden; admitted to the U. S. Marine Hospital, Port Townsend, Wash., September 30, 1890; died October 9, 1890.

*History.*—Patient was emaciated, having a dry, rough, sallow skin; passages being of a fair quantity, color, and consistency. A tuberculous history was elicited. No marked cough or expectorations. Some dullness over apex of left lung.

*Necropsy.*—The lungs were in fair condition, with the exception already noted. Heart valves normal. Liver considerably enlarged and studded with spots of fatty degeneration and of a tuberculous character. The mesentery was also in a similar condition, kidneys and spleen being in a fair working state.

## ACUTE NEPHRITIS.

## CASE 1.

C. W.; age, 37; nativity, Sweden; admitted to the U. S. Marine Hospital, New York, July 14, 1890; died July 15, 1890.

*History.*—Six months previous to his admission to this hospital he noticed that he was losing strength and weight rapidly; also that his appetite was very great, and he was so thirsty that he drank enormous quantities of water. He passed at this time a very large amount of pale-colored urine, and had difficulty in retaining his urine. He was admitted to this hospital on March 3, 1890, at which time an examination of his urine showed it to be of a specific gravity of 1044; it also contained sugar in great abundance. He remained in the hospital until March 28, 1890, when he was discharged improved, all his symptoms being greatly changed for the better. During the time he remained out of the hospital his health was very good until ten days before his admission, when he became very sick, having great pain in the region of the stomach and diarrhoea. These symptoms continued till he was admitted to the hospital, at which time he had no appetite and was very weak.

*Physical examination.*—An examination was made at this time. Subcrepitant râles were found over the right side anteriorly, and a friction sound with sibilant and mucous râles were found over the base of the left lung anteriorly. The breathing was very rapid and deep. The heart was negative. These symptoms continued for about forty-eight hours, when the patient became comatose, with pupils dilated and pulse scarcely perceptible, and died in about one hour.

*Necropsy.*—The autopsy was made twenty-four hours after death. The post-mortem lividity was slightly marked and *rigor mortis* was not present. The general nourishment was fair and the pupils were normal. The heart weighed 240 g. The pericardial sac was normal. The right and left ventricles were normal. Both the thoracic and abdominal aortas and the other arteries and veins were in a normal condition. The nares, larynx and trachea were in a normal condition. The left lung was congested and also the right lung. The pleura had adhesions at the upper and lower portions. The small intestine was filled with flatus as was the large intestine, but they were otherwise both normal. The medullary portion of the left kidney was congested and the cortical markings were indistinct. The capsule was adherent. The right kidney was much congested, was softer than the left, and the capsule was adherent. The pelvis was inflamed. The bladder, urethra, and prostate were normal. The spleen was very dark and intensely congested. Death was caused by acute parenchymatous nephritis.

## CASE 2.

J. J.; age, 38 years; nativity, Virginia; admitted to U. S. Marine Hospital, Detroit, Mich., February 26, 1891; died June 17, 1891.

*History.*—Patient was in hospital several times before for tubercle of larynx and lungs. When last admitted he was suffering from albuminuria (acute nephritis) and general dropsy, though it was then thought probable that the kidney disease was also of tuberculous nature. He was considerably improved, but about the first of May had a relapse. The dropsical effusions were at no time extreme, but the general debility was quite marked. Medication, which at first showed good effect, was of no avail later. Patient gradually declined and died from exhaustion.

*Necropsy (ten hours after death).*—Extensive, old adhesions were found in right pleural cavity and the right lung was filled with tuberculous deposits. The left was congested, but the evidences of tubercle, to the naked eye, were not so marked on this side. The heart was apparently normal. There was about 1,000 cm<sup>3</sup> fluid in left pleural cavity. The abdominal fluid contained flocculi of lymph and the peritoneum was thickened. The kidneys were of the large white variety and doubtless also affected by the tuberculous disease. Weight of kidneys: left, 267 g.; right, 270 g.; both lungs, 1,127 g.; liver, 1,365 g.; spleen, 170 g.; heart, 200 g.

## CHRONIC NEPHRITIS.

## CASE 1.

T. T.; age, 52; nativity, Ireland; admitted to the U. S. Marine Hospital, Cairo, Ill., August 18, 1888; died August 11, 1890.

*History.*—That of a typical case of chronic Bright's disease. Diuretics, diaphoretics, tonics, and stimulants were employed. Almost complete suppression of urine occurred toward the close.

*Necropsy (twenty hours after death).*—Height, 6 feet 2 inches; circumference at shoulders, 35 inches. Post-mortem lividity slight. *Rigor mortis* well marked. General nourishment fair. Pupils normal. Heart weighed 505 gms. Pericardial sac contained 25 c. c. clear serum. Aortic valves calcareous, others normal. Ventricles dilated and walls hypertrophied. Aorta, other arteries, and veins normal. Nares, larynx, and trachea normal. Left lung weighed 420 gms.; slight adhesions at apex; lung congested at posterior border. Right lung weighed 720 gms.; congested and oedematous at posterior portion. Peritoneum, tongue, pharynx, œsophagus, and stomach normal. Diameter of pylorus, 2 cm.; of cardiac orifice, 2.5 cm. Intestines and rectum normal. Liver weighed 2,200 gms.; normal. Gall bladder and ducts normal. Pancreas weighed 93 gms.; normal. Left kidney weighed 326 gms.; large white variety. Right kidney weighed 311 gms., also large white, with a cyst at lower portion. Pelvis and ureters normal. Bladder hypertrophied. Urethra and prostate normal. Left suprarenal body weighed 31 gms.; right, 31 gms.; each normal. Spleen weighed 311 gms.; normal. Scalp, skull, and membranes of the brain normal. Brain weighed 1,670 gms.; normal. The spinal cord was not examined. The remote cause of death was chronic nephritis; the immediate cause, uræmia and exhaustion.

## CASE 2.

S. S.; age, 39; a native of Ohio; was admitted to the U. S. Marine Hospital, St. Louis, Mo., November 26, 1890; died February 10, 1891.

*History.*—Dull, dragging pain in the back; frequent micturition. He has to urinate four or five times every night. Swelling of feet and legs. Appetite fair. Sleeps well but for getting up so often to urinate. Urine high colored and



cloudy, and contains much sediment. Specific gravity is 1.022. It contains 2 per cent of albumen, fatty and granular casts, some blood corpuscles, and a variety of epithelial cells. He improved, and, contrary to advice, left the hospital December 15, 1890.

He was readmitted December 26, 1890. Condition much worse than when first admitted. He failed gradually. It was almost impossible to keep his kidneys acting. He passed only a small amount of urine, which was high colored. Sediment same as when first admitted.

*January 3, 1891.*—Amount of urine passed in twenty-four hours, 3,000 c. c.

*January 10, 1891.*—Amount of urine passed in twenty-four hours, 1,800 c. c.

*January 20, 1891.*—Amount of urine passed in twenty-four hours, 1,000 c. c.

*January 30, 1891.*—Amount of urine passed in twenty-four hours, 1,000 c. c.

*January 31, 1891.*—Amount of urine passed in twenty-four hours, 1,000 c. c.

*February 2, 1891.*—Amount of urine passed in twenty-four hours, 750 c. c.

*February 3, 1891.*—Amount of urine passed in twenty-four hours, 300 c. c.

*February 9-10, 1891.*—Amount of urine passed in twenty-four hours, 100 c. c.

His appetite was fair till one week before he died; then it became impossible to find anything he could or would eat. There were no symptoms of oedema of lungs. Ascites not marked, not enough to interfere with respiration. There was general anasarca, and toward the close of life uræmic coma. Death took place February 10, 1891, 1:05 p. m.

*Necropsy.*—Body somewhat emaciated; 400 c. c. fluid in abdominal cavity, 50 c. c. in each pleural cavity, and 50 c. c. in pericardium. Heart and lungs normal. Liver contracted, showing deep furrows on upper surface. Kidneys in advanced stage of fatty degeneration.

### CASE 3.

M. K.; age, 24; nativity, Pennsylvania; admitted to U. S. Marine Hospital, Chicago, Ill., April 13, 1891; died June 30, 1891.

*History.*—No record of case previous to June 6, 1891; at that time he was in the last stages of Bright's disease, pale, anæmic, very dropsical, bowels disordered, nervous, querulous, miserable. He was then taking tinct. digitalis with bitter tonics, and Basham's mixture, 15 c. c. t. i. d. This was continued for some time, with occasional saline purge to reduce his water level. Then appetite, and some strength, returned for a time. About June 12 a draft through a neighboring door caused a stitch in right side, which soon disappeared, and moderate effusion in the pleural cavity was observed. The symptoms were rather those of hydrothorax; febrile and constitutional disturbance nearly *nil*. The general dropsy and pleural effusion went on from bad to worse. About June 20 the previous treatment was stopped, and nitroglycerin 1.5 gtt. every three hours (sol. 1-100) was ordered. This caused enormous diuresis during five days, at the end of which the dropsy had almost entirely disappeared. Some of this drainage was due to diarrhoea, no doubt, which was unusually active at the time. Efforts to stop this checked also the urine, and previous treatment was returned to, June 26. Meanwhile the pleuritic effusion alone resisted the action of nitroglycerin. The fluid, on the contrary, gradually filled the right cavity and a partial evacuation of 1,600 c. c. was effected June 29, with temporary relief. Next day, 1 p. m., he died of exhaustion.

*Necropsy (forty-six hours after death).*—*Rigor mortis* still marked. Great emaciation; pronounced post-mortem lividity. Heart weighed 220 gms. There were 50 c. c. serum in the pericardial sac. The ventricular walls and cavities were reduced proportionately to reduced weight of organ. Tissues firm. Right lung airless, compressed against the root of organ, covered with fibrinous exudation,

soft and gelatinous. Cavity contained 3,000 c. c., cloudy serum. Patches of exudate on walls. Left lung and pleural sac normal, except for presence of about 300 c. c. serum. Liver: Surface pitted with depressions upon section fibrous and fatty; pale; yellow in color; weight 1,520 gms.; abnormal. Gall bladder nearly empty. Kidneys about twice normal size and weight; pale; parenchyma very fatty. Upon section, cortical area much greater than normal, pale, evidently fatty. Spleen very large, dark, and firm; weight 450 gms.

#### CASE 4.

J. E.; age, 54 years; native of England; admitted to the U. S. Marine Hospital, San Francisco, Cal., May 15, 1891; died May 17, 1891.

*History.*—He was siezed with cramps in the stomach while on board ship during December, 1890, and became unfit for duty. He states at that time he took very large quantities of Epsom salts but without receiving benefit. On arrival at Honolulu he was admitted to the marine hospital there, and treated for two months; was then suffering with an obstinate recurring fever, and attacks of asthma every afternoon. Not being much benefited he was advised to come to San Francisco. On admission the patient claimed to have lost 30 pounds in the month. He had constant cough and profuse expectoration; he had slight pulmonary hemorrhages at the beginning of his trouble, but none within two months of date of admission; he was very weak and emaciated. The chest expansion was good on forced inspiration. Percussion showed normal resonance all over the chest, the dulness beginning at the fourth intercostal space on the right side. Auscultation revealed sonorous and sibilant râles all over the chest, also harsh and prolonged expiration with numerous moist râles, especially on the right side about the region of the liver. The heart sounds normal though weak. On inspiration the sternum was lifted, and the inferior ribs seemed to recede. Liver very much enlarged, reaching more than two inches below the umbilicus, and tender on pressure. Spleen normal. Kidneys could not be palpated on account of abdominal tenderness. Temperature normal. Urine contained albumen. He was put on a strong diuretic mixture, also a cough mixture, with very little benefit.

*Necropsy.*—*Rigor mortis* well marked; lividity on back and sides; general nourishment fair. The appearance of the heart was normal. There were slight adhesions at the apex of the right lung. Both lungs showed emphysema over the anterior surface, and upon being cut exuded an excessive quantity of serous fluid. The liver was enlarged from increase of connective tissue and fatty infiltration, giving an appearance resembling the nutmeg. The kidneys were somewhat enlarged, the cut surface presenting the cloudy opacity found in parenchymatous nephritis. The pyramids were ill defined; the cortex of normal thickness. On the surface of the left kidney was a cyst the size of a walnut containing a greenish thick fluid.

#### CASE 5.

##### *Rupture of small branch of superior mesenteric artery.*

T. A., sailor; age, 52 years; native of Michigan, United States; was admitted to U. S. Marine Hospital at Stapleton, Staten Island, N. Y., on August 8, 1890; died August 11, 1890.

*History.*—His health had been good up to the beginning of the present illness. He acknowledged having had syphilis, with secondary symptoms, about thirty years ago. Said he had been subject to rheumatism for about eight years, but it had never seemed to impair his general good health. On admission right



wrist and elbow were found slightly painful and patient complained of difficulty in moving them. Said the attack was of about three weeks' standing. Complains of constant pains in stomach, but finds them more intense after eating. Bowels have not moved for four or five days: has nausea, but no vomiting; is very sleepless and has night sweats. On examination an aortic obstructive murmur was heard. The patient sank steadily, becoming semiconscious, and finally had to be tied in bed to prevent his wandering about the ward. He seemed to be subject of alcoholic tremor, although he absolutely denied having been a drinker. He continued to fail and finally died on August 11, 1890, at 10 o'clock p. m.

*Necropsy.*—The post-mortem examination was held about twelve hours after decease. *Rigor mortis* marked. Post-mortem lividity marked. Left lung, old adhesions found anteriorly at base and laterally, particularly to diaphragm. Upper lobe normal. Lower lobe hypostatically congested. Right lung, adhesions all over (remains of old pleurisy); otherwise normal.

Heart, pericardial sac was found normal. Right ventricle concentrically hypertrophied. Left ventricle, ventricular side of mitral valve had some calcareous plaques upon it. Aorta showed some plaques of calcareous degeneration. It was seat of atheroma and aortitis. Left coronary artery was filled with calcareous plaques. Right coronary artery was seat of one or two plaques. Antemortem clot was found in right auricle. The muscular walls of the heart showed whitish mottling, due to chronic myocarditis. Liver had a few adhesions on its upper surface and was slightly fatty; otherwise normal. Right kidney showed a very large cyst on upper, outer, and posterior surface; also on section small cysts were found throughout the organ. The kidney was in a very granular state and the capsule adherent. It was also the seat of acute parenchymatous degeneration. Left kidney has a very large cyst at the lower end. The organ on section was found granular and infiltrated with small cysts; also the seat of acute parenchymatous degeneration. Spleen was flabby; otherwise normal. Bladder was normal. There was found a very large blood clot lying back of the mesentery and peritoneum, above and around the right kidney, and extending down into the pelvis. It was very closely adherent to the kidney and intestines. No cause for the hemorrhage could be found, so it is likely that it came from a small artery, a branch of superior mesenteric, as the result of some injury. The brain was removed and found normal, with the exception of the middle cerebral artery, which was atheromatous in several places. Spinal cord was not examined.

#### CASE 6.

S. L., native of Armenia; age, 30; immigrant; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., October 18, 1890; died October 30, 1890, 1890.

*History.*—A history of his case could not be obtained, as he could not speak a language that could be understood. On physical examination the following condition was found: His hands, legs, and feet were oedematous.

*October 19.*—His urine was examined and was found loaded with albumen. Microscopical examination of urine revealed granular and hyaline casts. The patient was put on diuretics and milk.

*October 20.*—The patient's condition was not improved. Brandy was given with milk.

*October 22.*—Hot applications to the back over the kidneys.

*October 23.*—Had suppression of urine; also had headache, and vomited frequently. Catheter was passed with difficulty, owing to several organic strictures of urethra, and bladder irrigated with hot water; no urine passed.

*October 24.*—Bladder irrigated with hot water, and passed 105 c. c. of urine. The urine was examined and found loaded with albumen.

October 25.—Bladder irrigated, and passed 55 c. c. of urine.

October 26.—The patient grew weaker, gradually becoming emaciated. The tongue dry and coated; also had diarrhea. He gradually sank, finally dying on October 30, 1890, at 12 o'clock m.

*Necropsy*.—Post-mortem examination was made fourteen and a half hours after death. *Rigor mortis* marked. Post-mortem lividity marked. The pleural cavity partially obliterated by old pleuritic adhesions. Left lung examined; was found adherent to diaphragm; inferior lobe hypostatically congested; rest of the lung normal. Right lung examined; posterior adhesions were found at apex and was adherent to the diaphragm; otherwise the lung was normal. Heart examined; ante-mortem clot was found in the left auricle and the left ventricle; ante-mortem clot was also found in the right auricle and right ventricle. Liver examined; was found adherent to diaphragm and hyperæmic; otherwise normal. Spleen examined; was found enlarged. Left kidney examined; capsule adherent. The kidney enlarged and found in a condition of parenchymatous degeneration. Right kidney examined; the capsule adherent; the kidney was larger than the left and found in a condition of parenchymatous degeneration. On perineal section a urithrorectal fistula was found just anterior to the prostate.

#### CASE 7.

C. H. (colored); age, 49 years; nativity, Virginia; admitted to the U. S. Marine Hospital, Detroit, Mich., December 2; died December 26, 1890.

*History*.—Said his illness began about six months before he came to hospital; was treated by a private practitioner and continued at his work until about two months ago, when he was obliged to stop. On the day of admission to hospital examination indicated dropsical effusions in pleural and abdominal cavities and pericardial sac, and the legs were extremely oedematous; slight oedema of face, about the eyes, but none of arms; pulse, 96, and very weak; arteries atheromatous; urine albuminous, about 30 c. c.; chest expansion 25 mm. (about 1 inch). Symptoms grew gradually worse; medication had no effect at all. The legs became enormously distended, large vesicles formed and discharged a quantity of serum. The skin about the legs became gangrenous; dyspnoea was distressing in the extreme. Patient could not lie down.

*Necropsy (ten hours after death)*.—*Rigor mortis* marked; pericardial sac distended with fluid. Heart, after opening and freed from clots, weighed 660 gms.; left ventricle was extremely hypertrophied; all the cavities contained straw-colored clots, and after they were removed numerous clots or deposits of fibrin mixed with some blood were seen in the spaces between the columnæ carneæ; the mitral valve was slightly damaged and a small rent was noticed in one of the aortic valves; the left pleural cavity was about half full of fluid; the right contained a less quantity, but on this side there were adhesions from a previous pleurisy; the right lung was congested; weight of left lung, 380 gms.; right, 665 gms.; walls of the stomach thickened, extremely so at cardiac end, where the induration was not unlike scirrhus. The rugæ were much enlarged and there was marked congestion. The liver weighed 1,615 gms.; was apparently in a condition of brown atrophy; left kidney weighed 172 gms.; right, 160 gms.; capsules were somewhat adherent, and upon removal the surface was modulated, but there were no cysts. The cortical substance was thinner than normal, and the entire organ was red and deeply congested, and felt hard like rubber. The spleen was in about the same condition and weighed 160 gms. From the wall of the stomach, outside near the œsophagus, a cyst the size of a hen's egg projected; it contained a creamy looking substance which was accidentally thrown away before microscopical examination could be made.



## CASE 8.

T. T.: age 52; nativity, Ireland; admitted to the U. S. Marine Hospital, Cairo, Ill., August 18, 1888; died August 11, 1890.

*History*.—Albuminuria was very marked. Urine was nearly suppressed toward the close. All of the ordinary remedies were employed.

*Necropsy (twelve hours after death)*.—*Rigor mortis* well marked. Height 6 feet 2 inches; circumference at shoulder 35 inches. Post-mortem lividity slight. General nourishment fair. Pupils normal. Heart weighed 505 gms.; pericardial sac contained 25 c. c. of clear serum. Aortic valve was calcareous but competent; mitral, pulmonary, and tricuspid valves competent. Left ventricle dilated, and hypertrophied; right ventricle similar. Aorta and other vessels normal. Nares, larynx, and trachea normal. Left lung weighed 420 gms., congested at posterior border: slight pleuritic adhesions at apex. Right lung weighed 720 g., congested and œdematous at posterior portion. Abdomen and peritoneum normal. Tongue, pharynx, œsophagus, and stomach normal. Diameter of pylorus, 2 c. c.; of cardiac orifice 2.5 c. c. Small and large intestines normal. Color of liver normal; weight 2,200 gms. Gall bladder ducts normal. Pancreas weighed 93 gms.; normal. Left kidney weighed 326 gms., and was of large white variety. Right kidney weighed 311 gms., and had a cyst at the lower portion. Pelvis and ureters normal. Bladder hypertrophied. Urethra and prostate normal. Left supra-renal body weighed 31 gms., normal. Right weighed 31 gms., normal. Spleen 311 gms., normal. Scalp, skull, and cerebral membranes normal. Brain weighed 1,670 gms., normal. Spiral cord and canal not examined. The remote cause of death was chronic nephritis. The immediate cause, uræmia and exhaustion.

## PYELITIS.

C. H.; age, 36 years; nativity, Norway; was admitted to the U. S. Marine Hospital, San Francisco, Cal., August 9, 1890, and died December 31, 1890.

*History*.—When admitted this patient was very much emaciated and anæmic. He complained of pain over right kidney and along the course of the right ureter. Urine contained pus, also albumen, but not more than could be accounted for by the presence of the pus. No pain in the region of the bladder. At times he passed very little urine, and again he would pass large quantities of it. During his illness he would have spells of vomiting, occurring every week or two. About two months before death he complained of pain in the region of the left kidney and ureter. These pains were not continuous, but would occur at intervals. There was some soreness, however, all the time. He gradually lost strength, could eat nothing, and finally died December 31, 1890.

*Necropsy*.—Body very much emaciated. *Rigor mortis* well marked. Lungs congested. Heart atrophied and fatty, weight 160 grams. Liver small and fatty. Spleen also atrophied. Both kidneys atrophied and contained a number of small abscesses opening into the pelvis. The pelvis and ureters of both organs were dilated, inflamed, and contained pus. The right kidney was much smaller than the left. The mucous membrane of bladder was thickened, congested, and in several spots ulcerated.

## ABSCESS OF KIDNEY.

R. W.: age, 52 years; nativity, United States; admitted to marine ward Jefferson Hospital, Philadelphia, Pa., July 31, 1890; died September 23, 1890.

*History*.—On admission he was emaciated and weak. He had great pain over right kidney, which radiated down right spermatic cord and down the right thigh. His appetite was fair and he was placed on nutritious food. On exami-

nation his urine contained two-fifths albumen; and on one occasion was freely mixed with blood. He had dullness and slight tumor in right lumbar and right hypochondriac regions.

*Necropsy.*—Right side of heart distended and relaxed; left side firmly contracted. The right kidney was completely destroyed, and in its place a large abscess containing 473 c. c. of thick, yellowish, fetid pus, intermixed with blood and containing a few calculous concretions.

### TUBERCLE OF KIDNEY.

J. G.; age, 38 years; nativity, Scotland; admitted to the U. S. Marine Hospital, San Francisco, Cal., May 14, 1889; died May 1, 1891.

*History.*—When admitted he was suffering from chronic cystitis and slight stricture. The condition of the bladder continued in spite of treatment, and to relieve the almost constant suffering an opening was made into the bladder (supra-pubic) for drainage. The operation was entirely successful in relieving the pain and the necessity of frequent micturation, a drainage tube communicating with a bottle at his bedside, relieving him of the necessity of employing a vessel. There has been at times considerable pain in the region of the left kidney and ureter, and the urine has at all times contained pus, though much less since than before the cystotomy. The patient has never regained much strength, and during the last three months failed steadily, presenting the condition known as marasmus, there being no special symptom of serious importance.

*Necropsy.*—General nourishment very poor. *Rigor mortis* well marked. The lungs were markedly congested, but otherwise normal. Heart small and flabby. The left kidney weighed 50 gms., was quite small and filled with broken-down caseous masses, apparently tubercular. The right was enlarged; weighed 300 gms., and showed the characteristic changes with iodine, found in sunyloid kidney.

### URINARY FISTULA (PYONEPHROSIS).

C. L.; age, 47 years; nativity, New York; admitted to the Marine Hospital, Stapleton, Staten Island, New York, February 25, 1891; died March 30, 1891.

*History.*—For four months he had a gleety discharge from the urethra. Previous to the fistula, now existing in the perineum, he describes a "corkscrew" stream on micturition. Passes urine through fistula by drops. Complains of no pain, but unable to retain his urine, frequently passing it in his sleep. General health otherwise good.

*February 25, 1891.*—Bichloride irrigation (1-3000) to perineum and same dressed antiseptically.

*February 26, 1891.*—Patient taken to operating room, and No. 16 (English scale) steel sound passed; stricture of urethra found to exist, admitting only No. 8, subsequently dilated to No. 16 as above.

*February 27, 1891.*—Catheterization ordered every two hours and a half.

*February 28, 1891.*—No. 16 (English) steel sound passed. Fistulas healing slowly and very little urine passing through them.

*March 12, 1891.*—Complains of incontinence of urine at night. *R.* Ext. Belladonnæ .02 divided into suppositories VI. *Sig.* I at night 8:30.

*March 13, 1891.*—Constipation. *R.* Rochelle mixture, 20 gms. at once; patient remained constipated after repeated doses of above until the morning of the 18th, when his bowels were relieved.

*March 18, 1891.*—Scrotum swollen and red. Suspensory bandage ordered.

*March 19, 1891.*—Penis œdematous. *R.* Ammon. Mur. 8. *Ac.* Acetic. 10. *Al-*cohol ad 90. *Sig.* dilute this with 1,000 c. c. water and apply to penis:



*March 20, 1891.*—(Edema of penis decreased. Slight urethral discharge. Injections of bichloride mercury 1-6000 ordered.

*March 24, 1891.*—Passage of sounds was 15 and 16, English.

*March 26, 1891.*—Complained of irritability of bladder.  $\mathcal{R}$  Fl'd Ext. Pichi 40. Cit. Potass. 15, Syr. and Aq. ad 100. Sig. 5 c. c. in water every 4 hours.

*March 27, 1891.*—Patient examined for urinary calculus. Result: Negative, and some difficulty in turning the "searcher" while in bladder.

*March 29, 1891.*—Bladder continues to be irritable; no swelling of penis. Pus in urine.

*March 30, 1891.*—Incontinence of urine.  $\mathcal{R}$  F. E. Bellad., .01 Qge t. i. d.

*March 30, 1891.*—Taken to operating room, anæsthetized for diagnostic purposes; examined for stone, with negative results, as before. With the finger in the rectum, the prostate was found to be slightly enlarged and the bladder-wall hard and resisting. A subcutaneous sinus, which was found upon examination, leading from the scrotum to just in front of anus was laid open, curetted and sutured. Patient was returned to bed and at 3 p. m. complained of pain in the region of the bladder, at 6 p. m. still complained of pain and was ordered Morph. Sol. (U. S. P.) 7 c. c. at 8:30 p. m.; 8 p. m. patient found in a profuse sweat, pulse weak, semiconscious and delirious, complaining of intense pain in region of bladder and desire to pass his urine. Upon attempting to do so only a few drops were discharged. Ordered Spts. Frumenti, 15 c. c. at once, and hypodermic 5 c. c. Magendie's Solution Morphine; 8:10 p. m., patient died suddenly.

*Necropsy (fifteen hours after death).*—*Rigor mortis* well marked; body fairly well nourished. Hypostatic congestion posteriorly. Pericardium: Adherent to chest wall. Pleura, left: Adherent to chest wall. Aorta arch: Slight angular projection at the junction of the ascending and transverse portions, forming almost a complete and dense, hardened ring. Heart: Flabby and enlarged; deposits of fat externally. Left ventricle: Hypertrophied; ante-mortem clot extending into aorta. Aortic valves sufficient. Mitral valve thickened and calcareous deposit at base. Right ventricle: Pulmonary valves slightly insufficient, otherwise normal. Lung, right: Small, base congested; slight amount of pus oozing from bronchiales. Lung, left: Firm adhesions to chest wall; when broken through the lung was found completely collapsed and left thorax apparently empty. Liver: Examined and found normal. Spleen: Normal. Kidney, right: Enlarged; white in color; large deposits of fat externally. One section found to be broken down and filled with fetid pus and cavities occupied the position of the pyramids. Ureter enlarged and about 3 cm. in diameter. Kidney, left: Enlarged and in same condition as the right. Bladder: Small and filled with pus; walls thickened, orifices of ureters dilated; mucous coat appearing gangrenous, corresponding to appearance of kidneys; bladder small and capable of holding about 30 c. c. Other organs not examined. Remarks: During the whole duration of the attack the patient's temperature never rose above 37.6. Up to a few days of his death showed no symptom of any serious disorder, sitting up at his bedside and moving around the ward.

## ORGANIC STRICTURE OF THE URETHRA, COMPLICATED WITH PERIURETHRAL ABSCESS.

### CASE 1.

J. C.; age, 67 years; nativity, Ireland; admitted to the U. S. Marine Hospital, New Orleans, La., May 18, 1891; died 7:35 a. m. May 25, 1891.

*History.*—The patient stated that he had had a stricture of the urethra for several years, and that he had been accustomed to pass a flexible gum catheter, usually a No. 2 English, with a stylet, when he was unable to pass his urine.

One week before his admission, and while recovering from a protracted spree, about eight hours after passing this catheter, he began having chills, followed by fever and sweating, which lasted three days, and subsided under the use of quinine. While having the first chill he again attempted to draw his urine, but was not successful. He thinks that he wounded the urethra in his attempt to pass the catheter, as it was very painful. (An examination of the catheter showed it to be quite foul, and the point broken, allowing the stylet to protrude.) Immediately afterward he bled freely from the urethra, and had great difficulty in passing his urine. In a short time a "swelling" appeared behind the scrotum. It was hard and very painful. Two days before entering the hospital there suddenly developed a profuse, purulent, urethral discharge, and at the same time the "swelling" behind the scrotum became softer. An examination showed a large, periurethral abscess behind the scrotum, which had probably opened into the urethra. There was no albumen in the urine. The heart and lung sounds were normal. Temperature  $37^{\circ}$  C. Pulse 84. A cathartic—sodii bicarbonatis, hydrargyri-chloridi mitis *aa.*, 0.5 g.—was given, followed the next morning by a large rectal injection of warm water, which caused a free evacuation of the bowels. Insomnia and restlessness were relieved by compound ipecac powders.

May 19, 1891.—Ether was administered after a full dose of morphine sulphatis, 0.016 gm.; atropinæ sulphatis, 0.001 gm., and whisky 45 c. c.; and the periurethral abscess opened. After many vain attempts to get into the bladder through the urethra with filiform bougies and other urethral instruments, by an incision in the median line of the perineum, about 60 c. c. of intolerably fetid pus escaped. As it was impossible to get an instrument into the bladder through the urethra after opening the abscess, the incision was carried backwards in the median line, and the urethra opened behind the deepest stricture, just in front of the prostate gland, so as to drain the bladder, which was overdistended with highly ammoniacal urine. The patient did well after the operation. He passed his urine through the perineal wound. He, however, had a little rise in temperature, but not above  $38^{\circ}$  C., and was somewhat restless. These symptoms were controlled by quinine and morphine. Whisky and milk were given freely.

On May 23, after all the fever and restlessness had disappeared, he was again etherized, a filiform bougie was introduced per urethra into the bladder, and over this a Gouley's dilator threaded. The whole urethra was dilated so that a No. 18 English sound could be introduced. The patient recovered from the anesthetic, but after passing his urine he had a severe chill, followed by a high fever ( $41^{\circ}$  C.) and profuse sweating. In a short time he became comatose, had involuntary stools and stertorous breathing, with great prostration. He continued in this state, without intermission in his fever, until death, which took place at 7:35 a. m. May 25, 1891. Whisky, quinine, and milk were given freely. The perineal wound was dressed with bichloride gauze. The fever was reduced with antipyrine and ice bags to the head.

*Necropsy.*—*Post-mortem* lividity was well marked. *Rigor mortis* absent. The body was that of a well-developed and well-nourished white male adult. The heart weighed 400 gms. The wall of the left ventricle was 3 cm. in thickness. The right 1 cm. The aortic arch and valves were the seat of syphilitic endarteritis, but the valves were competent. The heart was infiltrated with fat. The left lung weighed 632 gms. The right 830 gms. Both lungs were emphysematous, and the dependent parts were the seat of hypostatic pneumonia. The liver weighed 1,710 gms., and had a syphilitic scar on the dorsal surface of the right lobe. The left kidney weighed 130 gms. The right 145 gms. Both were small and reddish. The surface was covered with small nodules and the capsule adherent. On section, the cortex was found thinner than normal and was the seat



of several small cysts. The mucous membrane of the bladder was somewhat congested. The ureters and prostate gland were normal. There were several lacerations and extravasations, chiefly submucous, in the urethral wall. They were at the seat of old strictures. There was an incised perineal wound about 2 inches long, which exposed the urethra, and at both angles opened into the urethra. The posterior opening was just in front of the apex of the prostate gland. The spleen weighed 216 gms., and was adherent to the diaphragm by old fibrous bands. The other organs were normal. The brain and spinal cord were not examined.

## CASE 2.

P. W.; age, 38; nativity, Holland; admitted to the U. S. Marine Hospital, Mobile, Ala., February 13, 1890; died November 17, 1890.

*History*.—Patient when admitted had much difficulty in passing urine, the stream being very small and twisted. The urine was loaded with pus and mucous. On examination it was found impossible to pass any but the smallest instruments. The symptoms gradually increased in severity until the patient died.

*Necropsy* (fifteen hours after death).—Post-mortem lividity slight. *Rigor mortis* marked. External appearances: Nothing abnormal noticed; body emaciated. Thoracic cavity: The left lung weighed 475 gms., and was normal in appearance and structure. The right lung weighed 500 gms. The pleura was normal. Heart normal in size, and the valves were competent. Abdominal cavity: Stomach was normal in size and appearance, containing about 500 c. c. of dark-green fluid. The liver was enlarged, weighing 1,550 gms. The kidneys were both much diseased. Right kidney was very small; weighed 80 gms. The pelvis was dilated and filled with pus. Left kidney weighed 240 gms.; it was much enlarged, and the pelvis was enormously dilated and filled with a purulent fluid, about 100 c. c. The ureters were thickened and increased in size, the diameter being one-half inch. Bladder was very much dilated and hypertrophied; the walls were three-eighths inch in thickness. It measured 7 inches in its long diameter and was 5 inches wide. It contained 600 c. c. of urine, mixed with pus and mucus. Spleen weighed 190 gms., and contained a small abscess in its substance about the center. Pancreas and intestines normal. A very tight and almost impassable stricture was found in bulbous portion of the urethra. It was of a hard, fibrous nature.

## TUBERCULOSIS.

W. W.; native of Germany; age, 33 years; seaman; was admitted to the U. S. Marine Hospital at Stapleton, Staten Island, N. Y., on February 27, 1890; died December 18, 1890.

*History*.—Patient stated that for two days previous to his admission his legs had been greatly swollen, and that seven years ago he had the same trouble, which then lasted two or three days. His urine, he stated, was white and sticky, the quantity passed in twenty-four hours being much less than usual. This trouble with his urine had lasted continuously for three or four weeks previous to his admission to hospital. Patient's general condition was bad, his appetite poor, and he suffered from great physical weakness. His bowels were more or less constipated.

*Clinical examination*.—Left testicle was found to be enlarged, swollen, and painful; temperature was normal; inguinal and epitrochlear glands were enlarged, and patient acknowledged to having had chancres. His penis had been amputated one year before admission to hospital, as he said, "for sores" (chancres). Under treatment the left testicle gradually became reduced in size, until by March 17 it was markedly smaller. From the above date until March 22 the testicle

grew steadily worse again and upon an operation being proposed patient refused further treatment and left the hospital March 22, 1890, not improved. On September 13, 1890, patient returned to hospital, stating that he had been ill for two months, and that he had "an open swelling" in his left groin.

A swollen, indurated, sloughing ulcer was found, involving all the glands in the region of the left groin. The lumbar glands also appeared to be implicated, and the epitrochlear glands were enlarged. Patient was placed under the diagnosis of syphilis secondary, but reservedly, as the appearances suggested malignancy. Patient's condition became steadily worse up to December 7, when an abscess of left cord was noticed, which eventually opened at upper part of scrotum, discharging pus freely and resulting in consequent fall of temperature to normal, it having been at 38.4° C. previously. Left testicle appeared at this time to be entirely obliterated. On December 17 patient sank into a stupor, from which he never rallied and from which he could be aroused only with difficulty. From this point out he sank steadily, finally dying at 10 o'clock a. m., December 18, 1890. Throughout the clinical course of this case, from date of admission until date of death, the slough in left groin extended circumferentially steadily.

*Necropsy.*—Post-mortem was made December 19, 1890, at 11 o'clock a. m., twenty-five hours after death. Post-mortem lividity was marked. *Rigor mortis* was slight. Right lung was adherent at apex by firm, old adhesions. On section, disseminated, gray tuberculous deposits were found throughout its substance. Left lung was thoroughly adherent to all the parietes, including the pericardium. It was the seat of disseminated, gray tuberculous deposits throughout, but no cavities. Heart was large, pale, flabby, and filled with post-mortem clots. The valves were normal. Liver, to all appearances normal. Spleen was adherent to all the surrounding structures, was greatly enlarged, soft, and contained recent tuberculous deposits in large number. Kidneys, left was large and pale. Capsule was nonadherent. The kidney had all the appearances of cloudy swelling. Right, slightly more congested, otherwise in same condition as left. Mesenteric glands were slightly enlarged. Left testicle was found to be entirely absorbed, with a cicatricial mass taking its place. What remained of the glands at site of ulcer was found to contain a large mass of tubercle and cheesy deposits. Death was undoubtedly caused by tuberculosis.

#### PSOAS ABSCESS.

N. J.; age, 27 years; nativity, Norway; admitted to marine ward, St. Joseph's Infirmary, Savannah, Ga., January 31, 1891; died June 24, 1891.

*History.*—Was treated in this hospital during June, 1890, for gonorrheal bubo on the right side, and discharged cured. The bubo reappeared shortly after his discharge, and soon began to suppurate; for at least two months the bubo has been, he states, in its present condition, completely softened, and is now, January 31, at the point of spontaneous rupture. On February 1 a large quantity of pus was discharged, and during the three weeks following healing from the edges progressed slowly, but at this time the continued free discharge led to a more careful investigation, and a sinus was found, which could be traced with a soft rubber catheter downward and backward in the direction of the true pelvis for a distance of 8 or 10 inches. The external opening was enlarged as much as possible, and by means of the soft catheter and a continuous-current syringe the sinus was irrigated with sublimate solution 1:5000, and injected with iodoform, bals. peru., etc. About the middle of March complaint was made of a severe pain in the left groin, and the flexor thigh muscles were considerably contracted. At this time careful examinations failed to reveal any abnormal condition of the



spine or lumbar region, and the pain was relieved, and the contracted muscles relaxed under the administration of large doses of sodium salicylate. About June 1 a swelling appeared in the left groin just below the spine of the ilium. On June 10 it was freely incised. About 1,000 c. c. of creamy pus evacuated, the cavity irrigated as deeply as possible, and dressed as on the other side. During the night of June 6 the patient became delirious, and attempted suicide by cutting his throat with a razor. The wound, though extensive, was superficial, and did not sever any large vessel, but the suppuration from this source may have hastened, by a few days, the fatal issue. From this time (June 6) frequent delirium of the noisy kind required the use of opiates and physical restraint. The treatment throughout was tonic and stimulant.

*Necropsy.*—*Rigor mortis* marked. Emaciation extreme. Abscess traced by a small sinus from the original bubo on the right side down and back to the brim of the pelvis, thence up through the iliacus and psoas muscles to the body of the last lumbar vertebra, which was superficially carious for two-thirds its diameter toward the right, the carious process being only  $\frac{1}{4}$  inch wide; thence the sinus passed behind the spine and in the psoas muscles of the left side enlarged into a pus cavity several inches long by 1 inch in diameter; from this point the sinus was traced by a tortuous way to the opening in the left groin. Other sinuses led from this opening up between the abdominal muscles and downward on the thigh, the fascia in these localities having sloughed away. Both pleural cavities were obliterated by old adhesions, and a few hard, cheesy nodules were found in the apex of the right lung. No abnormalities found in any other organs.

#### CARIES AND NECROSIS OF SPINE.

J. McD.; colored; age, 61; native of West Indies; admitted to the U. S. Marine Hospital, Port Townsend, Wash., November 7, 1890; died December 7, 1890.

*History.*—This patient was first seen upon shipboard by the health officer, and reported to have a large tumor of side. When received into hospital a tumor of the lumbar region was noted, which appeared to be divided by a constricting band. Aspiration gave a few flakes of jelly-like matter. After improving the condition of the patient, he was etherized and an incision made over the larger tumor. About 2,000 c. c. of a puro-flocculent matter and broken-down tissue was evacuated, and the cavity washed out antiseptically and dressed. No history of a contusion or injury could be obtained. Extensive necrosis of the lower vertebræ sacrum and ilium could be made out. Tonic supportive treatment and antiseptics continued; pus sanguinolent discharge continued until death.

*Necropsy.*—Patient greatly emaciated. Incision through lumbo-sacral region showed extensive necrosis of transverse processes and bodies of vertebræ, also of sacrum and crest of ilium, which condition was found to exist upon their inner side within the cavity, but no collection of matter had accumulated on account of the careful drainage maintained. Other organs not examined.

#### EXTENSIVE SCALD OF SKIN AND INHALATION OF STEAM.

M. C.; age, 57; nativity, Ireland; admitted to the U. S. Marine Hospital, Cairo, Ill., May 12, 1891; died May 15, 1891.

*History.*—Patient was in a steamboat explosion. He was scalded over one-half of his body and had inhaled large quantities of steam. Carron oil was applied externally, and hot milk with stimulants given internally. The urine was suppressed toward the close.

*Necropsy* (twenty-four hours after death).—*Rigor mortis* marked. Heart weighed 360 grams; normal. Pericardial sac normal. Nares, larynx, and trachea in-

tensely inflamed. Left lung weighed 650 grams, very red, congested, and œdematous. Right weighed 700 grams; same character. Peritoneum normal. Tongue and pharynx inflamed. Esophagus, stomach, and intestines normal. No ulcer of the duodenum found. Liver weighed 1,800 grams; normal. Gall bladder and ducts normal. Left kidney weighed 150 grams; right, 145 grams; both normal. Pelvis ureters, bladder, urethra, and prostate normal. Spleen weighed 220 grams; normal. Nervous system not examined.

#### HEAT STROKE.

J. F.; age, 35 years; nativity, Ireland; admitted to the marine ward of St. Mary's Infirmary, Galveston, Tex., June 24, 1891; died June 24, 1891.

*History.*—Patient was a coal-passer and a hard drinker. He had been drinking before he left New York on this trip. When two days out he complained of nausea and weakness; soon recovered. Two days later had an attack of cramps, but soon recovered. On June 24 was feeling quite well; ate a hearty dinner and shortly thereafter went on duty in the fire room. Here he was overcome by the heat and was brought to the hospital unconscious, dying shortly after admission. Temperature immediately after death 47° C.

*Necropsy (sixteen hours after death.)*—*Rigor mortis* well marked. Body well nourished. Marked suggillation about back of head and on shoulders and arms. Scalp markedly congested. Brain softened, congested; ventricles filled with fluid. Lungs intensely congested; old pleuritic adhesions on left. Heart normal and empty. Liver congested, otherwise normal. Kidneys, markings distinct. Bowels filled with gas. Other organs normal.

#### MULTIPLE INJURY—RUPTURE OF BLADDER—PERITONITIS.

W. R.; seaman; age, 25 years; nativity, North Carolina; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., August 2, 1890; died August 3, 1890.

*History.*—He had been loading lumber from the cars to his vessel, and was caught between the car and the platform while the cars were in motion and badly crushed about the pelvis. When brought to the hospital he was suffering great pain, though somewhat under the influence of opium and alcohol. There was much tenderness over the whole belly, and some lacerated wounds on the back. His bladder was empty. Rupture of bladder was suspected. He sank rapidly and died in twelve hours.

*Necropsy (twenty-four hours after death.)*—No emaciation; no *rigor mortis*. Abdomen distended. On opening cavity an odor of urine was noticed; cavity contained about 750 c. c. of bloody serum. Intense congestion of peritoneum and intestines with many marks of injury. Kidneys were congested but not unsound. The same was true of the liver and spleen. A rent three-quarters of an inch long was found in the upper portion of the bladder, and it was evident its contents had escaped into the abdominal cavity. The pelvic bones were not broken, nor was its skin injured, save over the spines of the lower lumbar vertebræ. All the thoracic organs were found in a healthy condition. The small intestines were in many places quite black in color, but no gangrene had occurred.

#### MULTIPLE INJURY.

T. F.; age, 43; nativity, China; admitted to the marine ward, St. Vincent's Hospital, Portland, Oregon, November 20, 1890; died November 21, 1890.

*History.*—The bursting of a cylinder-head on the steamer *Telephone* caused a piece of iron to be hurled like a fragment of bomb-shell, striking the patient ob-



liquely and thence bursting through a door. The patient was struck in the back on the right side, sustaining a double fracture of several ribs, which rose and fell with the respiratory rhythm. Soft parts greatly swollen, with extravasation and emphysematous. Pain great, shock marked, but pulse seemed unexpectedly strong. The soft tissues were torn off the back of the lower end of the humerus, which was split and crushed for 6 cm. Chest was given supporting dressing and arm put up antiseptically. No blood was expectorated. In spite of liberal use of morphine (he was, like most Chinamen, an opium consumer) he suffered much, and died about twenty-one hours after injury was received.

*Necropsy.*—Body poorly muscled; rather meager. Large area of swollen and contused tissue over right posterior chest, about 20 cm. square. Thorax: right lung congested, collapsed, leathery; lower lobe deeply torn in several places by ragged projection inward of two ribs, and pleura contained 1,000 c. c. blood. All the ribs on right side, from seventh to eleventh, inclusive, were broken near the angles and driven inward. The seventh and eighth were broken again about 12 cm. from first fracture, making an intermediate fragment of that length. The ends were fearfully ragged and prominent in the pleural cavity. All the other ribs above the seventh were dislocated, their heads driven inward and forward to a plane anterior to that of the front of vertebral column. The left side of chest presented no lesions, except that the heads of the upper ribs seemed to project forward unduly. Heart natural; firm in systole. Liver: there was a small superficial cicatrizing abscess on its superior surface. Left kidney normal; right was congested, and its surrounding tissue, especially next to vertebral column, was full of extravasated blood. Humerus at lower end exposed by tearing away of soft parts. In lower 7 cm. were several irregular fractures and some comminuted fragments. The condyles were split asunder, and the joint thus opened. Bones of forearm not injured.

#### GUNSHOT WOUND FEMORAL VEIN, THROMBOSIS AND EMBOLISM.

A. W.; age, 36 years; nativity, Germany; admitted to the U. S. Marine Hospital, San Francisco, Cal., January 16, 1891; died January 20, 1891.

*History.*—He was admitted from the city Receiving Hospital, where he had been treated since the accident happened. There was a gunshot wound of the thigh over the middle of Scarpa's triangle, received January 14, 1891, probably late in the evening. The dressings were slightly wet with blood, but there was no pus. The symptoms of infection were the history of vomiting, anorexia, and fever 39.8° C.) given by the patient. The dressings on wound when admitted were a piece of absorbent cotton and small spica bandage. Patient said the wound had been probed and dressed at the city Receiving Hospital. The wound was probed to find the ball, but unsuccessfully. It was then cleansed with peroxide of hydrogen, and antiseptic dressings applied. Dressings were changed daily in the same manner, being when removed always wet with blood, but no pus appeared at any time, and not enough loss of blood to endanger life. On the morning of January 20 the patient was delirious, and as the temperature remained high, an anæsthetic was given with a view to thorough exploration of wound and the finding of any concealed abscess or other cause of the patient's condition. When placed on the table the heart's sounds were apparently normal; pulse rapid and weak; patient not anæmic. There was some wild delirium. During the administration of the anæsthetic (chloroform and ether) and the subsequent examination of the wound, bleeding was quite profuse. An incision was made through skin and connective tissue to the sheath of the femoral vessels. The artery (femoral) could be felt to the outer side of the wound, the ball having apparently denuded the inner side of this vessel. A piece of bone was removed from the depth of

the wound. The pulse now became very weak; the pupils irresponsive to light. As soon as a counter opening had been made on the under surface of the thigh for drainage, the upper wound was packed with iodoform gauze and bandaged. The patient gave signs of returning consciousness, but the pulse remained very feeble, and in spite of the efforts at resuscitation he died about half an hour after the subsidence of anæsthesia, 11.30 a. m.

NOTE.—While the anæsthetic was being given the patient exhibited a peculiar rapid respiration, which, with the sudden failure of this function and the sudden death without sufficient apparent cause, seemed to point to embolism of the lungs or pulmonary artery. Temperature taken from chart: January 16, a. m. 39.8, p. m. 40.6; 17, a. m. 40, p. m. 40.6; 18, a. m. 39.8, p. m. 40.2; 19, a. m. 39.4, p. m. 40.6; 20, a. m. 39.4.

*Necropsy (at coroner's office, by Dr. Williams and assistant, at 12 m., January 21).—*Upon deepening the wound at Scarpa's triangle and opening more freely the femoral sheath there presented an open wound on the anterior and outer side of the femoral vein about half an inch in length and nearly the thickness of that vessel, which, upon being probed, was found empty in this locality. The tissues around the wound were discolored as from a bruise, but not unhealthy in appearance. The body was now placed in a prone condition, the drainage wound enlarged, and through it the flattened ball (about .38 caliber) removed. There were also several small splinters of bone in the wound attached to surrounding tissues or periosteum. The body now being again placed on the back, the thorax and abdomen were opened. The heart was small and flaccid; color and consistence normal. In the right ventricle was a clot, yellowish white, corresponding in shape with the conus arteriosus, having a prolongation extending into the pulmonary artery. The lungs were somewhat congested in parts, but crepitant throughout. Liver and other organs normal in appearance. Cause of death, embolus from wounded femoral vein washed into the heart, forming a nucleus for the fibrinous clot described above. Cause of high temperature, probably systemic infection through vein, not having at the time of death advanced sufficiently to cause suppuration or abscess.

#### CASE 1.

##### *Gunshot wound of head.*

S. D.; age, 31 years; nativity, Alabama; admitted to U. S. Marine Hospital, Mobile, Ala., January 17, 1891; died January 23, 1891.

*History.*—On the day previous to admission patient was shot with a .38 caliber pistol. Examination showed a wound one-half inch above left ear, the ball having entered the brain. He was dull, stupid, but not unconscious, and no symptoms of compression; complained of pain in head, and just before death had several epileptiform convulsions.

*Necropsy (four hours after death).*—External appearance: no post-mortem lividity or *rigor mortis*; body well nourished. Thorax: heart normal, weighing 380 grams. Lungs, healthy; right weighing 700 grams; the left, 650 grams. Abdominal cavity: stomach and intestines, normal; liver weighed 1,250 grams; kidneys normal, right weighing 185 grams, the left, 200 grams; weight of spleen, 230 grams. Head: wound in scalp, 1 inch in diameter, about 1 inch above left ear. A fracture involving the upper portion of the squamous portion of the temporal bone and the lower part of the parietal was found. The aperture was 1 inch in diameter; the inner lobe was more extensively broken than the outer, and several small speculæ of bone were found on the surface of the brain. The ball, very much flattened and altered in shape, was found near the opening in the skull; but it was quite evident that the ball had at first been lodged in the base of the brain,



and had become displaced toward the surface, consequent upon the softening of the brain substance along the track produced by the entrance of the missile. Wound in the brain was  $1\frac{1}{2}$  inches long, extending downward and backward, and was large enough to admit the index finger. It involved the lower part of parietal lobe, and also the temporo-sphenoidal lobe. The brain tissue around this tract was much inflamed and softened, and several small spots of extravasated blood existed in the adjacent structure. The meninges were much congested, and considerable blood was found on the surface of the dura mater. Brain weighed 1,300 grams.

### FRACTURE OF SKULL.

#### CASE 1.

N. T.; age, 27 years; white, male; was admitted to the marine ward St. Joseph's Mercy Hospital, Dubuque, Iowa, July 1, 1890; died July 2, 1890.


*History.*—On admission the patient was comatose; breathing was stertorous and irregular, thirty-six to the minute; pulse 96, temperature  $38^{\circ}$  C.; paralysis complete; no reflexes; height and weight not ascertained. On the head there appeared a lacerated wound 3 cm. in length, somewhat curved, on the left side over coronal suture. It was stated that at 4 p. m. of the same day he had been struck during or after a fight with a stick of cord wood, had immediately fallen and become comatose. He died at 2:30 a. m. July 2.

*Necropsy.*—*Rigor mortis* well established. External appearances: Only mark or abnormal appearance on body below the neck was a double curved row of spots on the left breast near the nipple, the marks of human teeth or a heavily nailed boot-heel. To the left of the sagittal suture over the coronal was a lacerated wound about 3 cm. long. Two old cicatrices were noticed in scalp. Scalp divided from ear to ear and removed to occipital and frontal protuberances. Extravasations noticed of dark clotted blood in occipito-frontal and both temporal muscles, and beneath pericranium. Skull: Separation of coronal suture from about 5 cm. to left of sagittal suture to squamous portion of temporal bone of right side; corresponding suture of left side almost obliterated. Calvarium removed; black clot 5 cm. in length lying on dura in right orbital and temporal region, large clots in right anterior and middle fossæ, one in right posterior fossa. A piece of internal table of frontal bone detached, 3 cm. long,  $\frac{1}{2}$  cm. wide, from coronal suture to the left of sagittal suture, adherent to dura and surrounded by clotted blood; under this fragment was a small clot. Dura stripped from base of skull, separation of coronal suture was found to be continuous with a fracture extending through the foramen spinosum. Middle meningeal artery ruptured. Arteries of circle of Willis normal and healthy. Right lateral and fourth ventricles contained small quantity of bloody serum; left lateral empty. White substance of brain anæmic; ganglia appeared healthy on section to unaided eye. His assailant was tried for murder and convicted of manslaughter, the witnesses for the prosecution testifying that the fatal blow was struck some time after the fight from behind. The fracture of the frontal bone impressed the jury that the blow was on the side of the head, regarding the witnesses for the prosecution overzealous. The defense had no witnesses but the prisoner and the report of the autopsy.

#### CASE 2.

D. L.; age, 29 years; nativity, Ireland; admitted to the U. S. Marine Hospital, San Francisco, Cal., December 21, 1890; died January 3, 1891.

*History.*—When received he was suffering from a compound fracture of the skull, the result of a fall of about 12 feet, which occurred two days before his ad-

mission to hospital. He stated that he had not been unconscious at any time from the injury, and was feeling so well that he had eaten breakfast and dinner of eggs and steak on the day he came to the hospital. Upon his arrival the dressings were removed, and a contused wound of the scalp 5 cm. in length found in a position corresponding to the parietal lobule of the brain. At the bottom of this wound was a depression, with sharp edges and quite shallow, and as the patient had shown no signs of brain injury, it was decided to await further developments. The wound was therefore carefully closed and dressed antiseptically. At 12:30 p. m. of the following night he was seized with clonic convulsions of the right arm and right side of the face, the face becoming turgid; breathing rapid and pulse irregular. He was at once prepared for operation, ether being administered as quickly as possible. The wound was enlarged into the shape of , the site of fracture being indicated in the center. The depressed pieces of bone, about a dozen in number, were removed, leaving a circular aperture about 4 cm. in diameter. The dura mater had been torn by sharp fragments, and small portions of lacerated brain tissue protruded. A small arterial branch in the dura was tied by passing a curved needle and catgut beneath it, and the wound in the membrane closed with the same material. Four strands of large gut were left in the most dependent part of the wound for drainage, the remainder closed by continuous suture. Antiseptic measures throughout. The patient recovered consciousness, with relief from spasm and in comparative comfort. It will be noted here that no clot was found on the surface of the brain, and as the depression of bone was slight, as subsequent spasms were perfectly relieved by the inhalation of chloroform, and as paralysis followed immediately after the first spasmodic attack, it seems probable that the symptoms were due, not to the depressed fraction, but to the hemorrhage in the brain substance found post mortem, and described below. When the patient had regained consciousness after the operation, the right side of the face and right arm were paralyzed completely and the right leg partially. There was also aphasia. Two days later, on the reappearance of spasm, he was again etherized, the scalp wound extended anteriorly, and the trephine used at two points corresponding with the middle of the Rolandic fissure. As there was, however, no appearance of clot or injury in this locality, this part of the wound was again closed antiseptically.

*January 3, 1891.*—Spasms of the right arm and face occurred several times at irregular intervals, but were relieved at once by the administration of chloroform. During the last few days the patient has had facial erysipelas, which, however, did not seem to affect the scalp under the dressings. The latter have been changed daily. Small amounts of softened brain tissue and broken-down blood clots being removed from the site of the fracture. This morning, after the patient had eaten a light breakfast, there was a sudden failure of respiration, death occurring at 8:30 a. m.

*Necropsy (five hours after death).*—Some *rigor mortis*. Upon taking off the dressings considerable softened brain tissue and partly disorganized blood clot were found in the wound. When the skull cap was removed the brain substance at the seat of principal injury on the left side was dark-colored and softened. The pia mater was everywhere firmly adhered. The slight wound at the seat of trephining had closed perfectly; the brain substance in this locality having a normal appearance. From the primary wound there extended directly downwards as far as the corpus callosum a cylindrical clot, partly disorganized, and about this a considerable zone of ragged, softened tissue and clot. Superficially, the convolutions affected were the superior temporal, the parietal lobules (posteriorly), and the upper portion of the superior parietal. The softening extended down to and affected half of the corpus callosum. From the history of the case



it seems probable that the hemorrhage occurred suddenly on the night following his admission to hospital, from a branch of the middle cerebral artery, causing spasm of the right arm and face, being followed immediately by paralysis of the parts with aphasia, the paralysis no doubt being due to pressure exerted on the motor area or its converging fibers, or perhaps by obstructing the arterial branches supplying this part.

## CASE 3.

J. S.; age, 19 years; nativity, unknown; admitted to Cleveland City Hospital July 13, 1890, 9 a. m.; died at 1 p. m.

*History*.—July 12, about 7 p. m., he fell into hold of vessel, a distance of more than 20 feet, and struck on his head. It was not thought that he was seriously hurt, but the captain insisted on sending him to the hospital. On admission he walked up two flights of stairs with slight assistance, and answered several questions; but coma shortly followed. A slight contusion was found over occipital bone on left side, but no depression.

*Necropsy*.—Height, 1.78 m. Circumference at shoulder 0.95 m. *Rigor mortis* marked. Body well nourished. Pupils normal. Heart normal. Lungs: Left, adhesions in pleural cavity at apex and over upper lobe anteriorly; right, normal. Abdomen and contained viscera normal. Nervous system: Head; scalp, localized œdema posteriorly on left side and beneath scalp blood clot about middle of left lambdoid suture. Skull: No depression externally, but left lambdoid suture slightly separated for  $\frac{1}{4}$  to 5 cm., and from within it is seen that the inner table is fractured and fragments projecting inward. Membranes: Multiple minute hemorrhages of dura beneath site of fracture, and under dura on right side in temporal region a large blood clot, but no fracture of skull over this clot. Brain substance intact.

## CASE 4.

F. B.: negro; age, 21 years; native of Tennessee; was admitted to the marine ward of the Evansville City Hospital November 28, 1890; died December 8, 1890.

*History*.—Patient had been struck on the head with a hatchet by a fellow-roustabout on the steamboat *Evansville*. On examination, about twenty-four hours after the injury was received, a wound was seen on the right side of the head about 5 or 6 cm. in length, extending obliquely forward and downward and terminating about  $2\frac{1}{2}$  cm. above and behind the right ear. The wound had been closed with sutures by a physician, and as there were no symptoms of injury to the brain, such as unconsciousness, elevation or depression of temperature or pulse at any time, it was decided not to open the wound for examination. This was a fatal error. Patient had no trouble whatever until the morning of the 5th of December, when there was mental confusion, slight delirium, and the temperature arose to  $37.6^{\circ}$  oral, but there was no chill so far as could be ascertained. Pus had begun to discharge from the wound a day or two before, and a probe passed in showed a depression in the skull, but did not enter the cranial cavity. There was no further hesitation, and the patient was chloroformed with a view to thorough examination and removal of depressed bone. On exposing the bone by suitable incisions a depressed fracture was seen, corresponding in length to the external wound, evidently made by the blade of a blunt hatchet. A button of bone was removed just below the fracture and the finger inserted, disclosing laceration of the dura mater and a piece of bone imbedded in the cerebral tissue. This, on removal, proved to be a fragment of the internal table, 1 by  $1\frac{1}{2}$  cm. large, which had entered edgewise. Its removal was followed by a discharge of pus and disintegrated brain tissue, amounting to about 6 or 7 c. c. The abscess cavity was irrigated with simple warm water, a drainage tube in-

serted, and the wound closed. Patient did well until the afternoon of the 7th, when he had a slight chill, with violent pain in the head, soon passing into a comatose state, with death at 4 a. m. on the 8th.

*Necropsy.*—*Rigor mortis* well established, body well nourished, pupils equal and normal in appearance. On turning back the scalp, the posterior segment was found very œdematous. The wound in the skull was noticed as above described. On removing the skull cap the dura mater and surface of the convolutions were found intensely congested all over the cerebrum, but especially on the right side posteriorly. The dura mater was adherent to the convolutions in many places along the longitudinal fissure and about the site of the fracture. In the posterior portion of the right temporo-sphenoidal lobe was an abscess cavity with a capacity of about  $2\frac{1}{2}$  c. c., and containing a little pus and disorganized brain tissue. No other organs were examined.

Remarks: The hearing was unimpaired throughout the disease.

### COMPRESSION OF BRAIN.

#### CASE 1.

J. Y.; age, 50 years; nativity, America; admitted to U. S. Marine Hospital, Cincinnati, Ohio, October 19, 1890; died the same day.

*History.*—Patient was brought to the hospital in an unconscious condition at 6.30 a. m. There was a wound over left parietal bone, about 5 cm. above squamous suture, extending obliquely upwards and backwards; tissues about the wound somewhat puffy. No history could be obtained at the time further than that he had been struck with a club. The wound had been sutured and union had taken place, making it appear as though the injury had been inflicted two or three days before. Urine had been voided involuntarily. Left pupil was dilated; right contracted and a small opacity over cornea. Both eyes insensible to light. Unable to swallow. Right arm and leg extended, rigid, and paralyzed; left arm and leg restless, and most of the time flexed. Pulse, 56; temperature,  $37\frac{3}{8}$ ; respiration, 30 and slightly stertorous. It was subsequently learned that the man had been hit with a heavy hickory stick twenty-seven hours before he was brought to the hospital. When struck he reeled for a few seconds, then recovering himself endeavored to stanch the blood, which was flowing freely. The steamer he was on made a landing a few miles farther along, and a physician was sent for, who sutured and dressed the wound. Some of the witnesses claim that the man was conscious at this time, while others, including the captain, assert that he was not. They all agree that he continued his work afterwards, though they differ as to the time he remained up, some declaring that he worked as a roustabout up to 5 o'clock that afternoon, while others are equally positive that he only worked for an hour or so. After working awhile he complained of feeling badly, crawled under the boiler, and was found there shortly afterwards in an unconscious condition. The following morning he was brought to this hospital. On admission the wound was reopened to allow an examination of the skull. There was a considerable effusion of blood beneath the scalp. A careful examination failed to reveal any depression of bone. The wound was left open, dressed with iodoform; two-drop doses of croton oil administered hourly to provoke free catharsis, and an ice cap applied to the head. At 6 p. m. respiration was 44 and stertorous; pulse, 96; temperature, 39. One thin, small movement of bowels. Patient sinking rapidly. He continued to grow worse, and died at 10 p. m.

*Necropsy (fifteen hours post mortem).*—Body well nourished and that of a very muscular man. *Rigor mortis* well marked. Old scars over body indicative of



syphilis. Wound over left parietal bone about 5 cm. in length, extending obliquely upwards and backwards, commencing about 4 cm. above squamous suture. Hemorrhage from right nostril. Effusion of blood beneath entire scalp. There is a fracture of left parietal bone about 1 cm. posterior to coronal suture and about 5 cm. above squamous suture, extending down to and becoming lost in left temporal bone. Starting from the same point is another fracture which passes forwards to the coronal suture. The edges of this suture are forced apart somewhat as far as 2 cm. to the right of sagittal suture, where another fracture commences in right parietal bone and runs almost parallel with and about 1 cm. posterior to coronal suture, and is lost in temporal bone of right side. Another fracture begins at coronal suture on left side, about 6 cm. above squamous suture, and runs downwards and forwards through frontal bone for about 4 cm., and then divides into two, one branch running downward and backward about 2 cm., the other about the same length, passing forward and downward to the right. Another fracture commences at upper part of last-described fracture and runs downwards and backwards towards the temporal bone for about 2 cm. Another fracture commences at upper and posterior part of squamous suture and runs upwards and slightly backwards for about 3 cm. Another fracture commences at the fracture above described as being 1 cm. posterior to the coronal suture and runs downwards and backwards about  $2\frac{1}{2}$  cm. Of all these fractures only one is perceptible on the inner table of the skull, that being the one which follows the coronal suture. On removing the calvarium a large clot is found over dura mater, on left side, about 3 cm. thick, covering the greater part of the occipital and parietal lobes and the posterior half of the frontal, producing a great depression of the brain. Examination of the dura mater after removal of the clot shows a rupture of the middle meningeal artery. A clot about  $1\frac{1}{2}$  cm. in diameter is seen on the surface of the brain over the fissure of Rolando. It does not extend beneath the surface. There is considerable effusion of blood over the whole surface of the brain, dipping down between the convolutions in various places. Pericardium normal in appearance; contains about 15 c.c. of pericardial fluid. Heart normal; weight, 365 gms. Pleuritic adhesions over both sides of chest walls so firm as to require some little force to break them down. The upper lobe of left lung somewhat congested, probably hypostatic or post mortem; lower lobe throughout, but especially its lower portion, hard and nodular, evidently the result of a former pneumonia. Upper and middle lobes of right lung normal; bottom lobe in same condition as left lower lobe. Liver, stomach, spleen, pancreas, and kidneys normal in appearance. Both small and large intestines contain a considerable amount of soft fæces. Urinary bladder contains about 250 c.c. of urine. Weight of organs: Liver, 1,567 grams; spleen, 117 grams; right kidney, 134 grams; left kidney, 190 grams.

#### CASE 2.

J. S. M.; age, 36 years; nativity, Canada; was admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., May 4, 1891; died May 5, 1891.

*History.*—He had attempted to take off one of the hatches of his vessel and slipping had fallen head first to the bottom of the hold, striking the keelson and bounding off to the floor. He was brought to the hospital in a few hours and when admitted was unconscious, with a weak pulse of 120 beats to the minute, a moist skin, respiration slightly stertorous and slow, and pupils nearly normal. An examination showed a broken clavicle on the left side, a bruise of the back, over the spine, in the cervical region, and the tissues under the scalp on the top of the head seemed contused, but the skin was unbroken and no fracture of the bones could be made out. There was no bleeding from the ears, but a little arterial blood came from his nose. He partially regained consciousness once or twice during the day, but for very short intervals. His pulse grew weaker and

his breathing more labored, and about twenty hours after the accident he died, apparently choking to death.

*Necropsy (ten hours after death).*—Body well nourished; height 5 feet 11 inches; circumference around shoulder 44 inches; no *rigor mortis*. The scalp was dissected from the skull and a large contusion was found over the two parietal bones as far as the temporal ridges and back to the occipital protuberance. The muscles in this region were pulpified and there was much blood extravasation in the surrounding tissues. The bones were carefully examined but no fracture was seen. Upon removing the skull cap quite a quantity of bloody serum escaped from the meninges, which were slightly torn by the saw. The brain membranes were much congested, and a large amount of bloody fluid in the meningeal spaces. There was no rupture of the middle meningeal arteries nor of any of the larger sinuses of the brain, though the fluid in the lateral ventricles was bloody. At the base of the brain a quantity of bloody fluid was found, but the source could not be ascertained. There was no fracture of the bones forming the base of the skull. The medulla oblongata was reddened and the spinal membranes in its vicinity were congested, and bloody fluid in considerable quantity was present, but no lesion of the cord or medulla was detected. The lungs were both œdematous. The heart was sound, somewhat enlarged, and filled in both ventricles with a blood clot. No serious disease of any of the abdominal organs was found. The cause of death was doubtless some lesion of the respiratory centers resulting from the compression produced by the excess of fluid found around the pons and medulla, but the source of hemorrhage was not found.

#### FRACTURE OF SPINE.

##### CASE 1.

G. B.; age, 34 years; nativity, England; admitted to Cleveland City Hospital August 18, 1890; died September 15, 1890.

*History.*—While standing on the dock he was struck across the back of shoulders by a falling derrick, rendering him unconscious a few minutes. With return of consciousness there was paraplegia. Examination showed a contusion on left shoulder. At about the first dorsal vertebra was slight crepitus as if due to fracture of a spinous process. At ninth, tenth, eleventh, dorsal vertebræ was slight swelling and a marked prominence of two vertebræ. Just above this prominence was a depression. Crepitation, as if due to fracture of body of vertebra was felt in this region. Complete loss of motion and sensation in the lower extremities, and of control of micturition and defecation. Occasional priapism noticed on first day, none later. One day after the accident there was the beginning of a decubitus on the back, and the second day on each heel, though every effort was made to avoid this. There was always severe pain when not under morphine. Temperature remained between 38° and 40° C.

*Necropsy (twenty-four hours after death).*—Height, 1.69 m. Circumference at shoulders, 0.93 m. Body somewhat emaciated. Lividity marked. *Rigor mortis* slight. No sign of contusion on either shoulder. Erosion of skin at both hips. Decubitus over sacrum, about 8 cm. in diameter, undermined edges, bone not eroded. Prominence of spinous processes of tenth and eleventh dorsal vertebræ. Old fracture of left tibia. Pupils alike and dilated. Heart normal. Congestion of lower lobes of both lungs. Adhesions to diaphragm at base of left lung. Kidneys: both large, lobulated, mottled with dark-red granular patches; section showed many small infarctions in each. Other viscera normal. Spinous processes of second and third dorsal vertebræ fractured and not united. Body of the eleventh dorsal vertebra fractured transversely, lower fragment projecting forward and pressing upon cord, which it had lacerated.



## CASE 2.

W. G. H.; age, 22 years; nativity, England; was admitted to the U. S. Marine Hospital, New Orleans, La., February 19, 1891; died February 28, 1891.

*History.*—The patient gave a history of having been knocked down the hold of his vessel about three hours before his admission to the hospital. He fell head first and struck between two molasses barrels. He has not been unconscious. Immediately after the injury his legs were completely, and his arms partially paralyzed. On admission the patient was perfectly conscious and rational. He, however, became delirious the next day, and on the following day he became unconscious. The coma lasted about twenty-four hours, when it completely disappeared, and he remained conscious until a few hours before death. He complained of intense pain and tenderness in the back of the neck, and pain in the upper part of the dorsal vertebra, in the shoulder, and left arm and forearm. The pain continued throughout his illness, except when he was delirious or unconscious. There were two small, contused, scalp wounds, and one small contused wound of the forehead. There was complete paralysis of motion and sensation in the legs, and partial paralysis of motion and sensation in the arms. The paralysis of motion in the arms became complete in a short time. Sensation was absent in the body as high as the sixth dorsal vertebra. After a short time sensation returned sufficiently for the patient to feel the prick of a pin, but this improvement was only temporary. All of the reflexes, spermatic, patellar, ankle clonus, abdominal, and those of the arms were absent and remained so during his illness. There was no pain in the head. The pupils were normal in size, and in their reaction to light when he came in, but while delirious or comatose they were contracted and did not respond to light. There was slight bleeding from the nose. There was no bleeding from the ears, nor was there any watery discharge from them. He protruded his tongue normally. To the left of the vertebra prominens and over the left shoulder were slight contusions. The respirations were entirely abdominal, full, and 18 per minute. After the first day they became more frequent, varying from 26 to 40 per minute, and for a day or two before death they became very shallow. The surface was cyanotic from the beginning, although the face was flushed somewhat at first, and this increased as the respirations became frequent and shallow. He complained of a choking sensation at first, but this entirely disappeared. He was very thirsty, and drank large quantities of water, lemonade, and milk. He vomited occasionally. He had persistent priapism, of which he was not conscious. The urine was retained, and had to be drawn off by a catheter. It became ammoniacal and contained a small quantity of sugar. The constipation at first, was succeeded, after a calomel cathartic, by diarrhoea and involuntary stools. A small bed sore developed. The temperature never went above  $39.7^{\circ}\text{C}$ ., and usually was about  $38^{\circ}\text{C}$ ., except on the day of admission, when it was  $36.5^{\circ}$ . The pulse was full and regular throughout. He apparently died from apnoea. The treatment consisted in placing the patient on his back upon a hard mattress, and extension by means of Hodgkins' apparatus, and elevation of the head of the bed. Small doses of morphia relieved his pain. Milk and bovine were given freely.

*Necropsy (fifteen hours after death).*—The body was that of a well-developed and nourished white male adult. *Rigor mortis* was fairly well marked. Post-mortem lividity well marked, especially in the dependent parts. There was a small bed sore over the buttocks. The heart weighed 395 grams, and was somewhat hypertrophied. The left lung weighed 475 grams and the right 610 grams. Both were congested and oedematous. The intestines contained nine lumbricoid worms. The kidneys were enlarged and congested. The left weighed 255 grams and the right 245 grams. The bladder was highly inflamed. There were two small, con-

tused scalp wounds, and one contused wound of the forehead. The bones were not exposed. The skull was normal. The cerebral meninges were normal. The brain was congested and weighed 1,355 grams. The arch of the fifth cervical vertebra was fractured on both sides of the spinous process, and the bodies of the fifth and sixth cervical vertebræ were fractured. The body of sixth was depressed, diminishing the caliber of the spinal canal about one-half, and compressing the spinal cord. The cord was torn at the point of compression, and was the seat of numerous hemorrhages, especially just above and below the point of compression. The whole cord was softened, but it was more so below the fracture. The spinal meninges were hyperæmic, and at the point of fracture were inflamed. The other organs were normal.

#### WOUND OF VISCERA WITHOUT WOUND OF ABDOMINAL WALL.

P. A.; age, 43 years; native of Denmark; admitted to the U. S. Marine Hospital, Port Townsend, Wash., July 1, 1890; died July 2, 1890.

*History.*—While loading lumber at Port Hadlock, Wash., he was struck on the abdomen by the end of a piece of timber and thrown over 20 feet. A local physician attended him during the day until he was transferred, in the evening, to this hospital. Shock was found to be great; pulse weak and thready, and considerable griping pain over seat of contusion just below the navel. Stimulants, hypodermics of morphine, cataplasms, etc., administered. 12 p. m., patient in a cold, clammy sweat; treatment continued; operative interference contraindicated on account of his deficient rallying power.

*Necropsy (twenty-four hours after death).*—*Rigor mortis* well marked. Post-mortem congestion over body; face and neck almost black, with considerable sanious discharge from nose and mouth. Connective tissue of chest infiltrated and emphysematous. Left pleural cavity contained considerable bloody serum. Heart and lungs normal. The liver was greatly congested, capsule of a dark, greenish hue, and gall bladder distended. The stomach contained considerable partially digested food, the injury having been sustained shortly after his breakfast, and the process of digestion arrested. A rupture of the iliac portion of the small intestine was found about 2 mm. in length and in a longitudinal direction. The whole peritoneal cavity was coated with fluid fæcal matter, and in considerable quantity. The intestines were generally congested and matted together in the first stage of a violent inflammation; kidneys normal, and bladder empty.



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STATISTICS

U. S. MARINE HOSPITAL SERVICE.

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# STATISTICS U. S. MARINE HOSPITAL SERVICE.

TABLE I.—COMPARATIVE TABLE OF NUMBER TREATED—1868 TO 1891.

The following tabular statement will serve to illustrate its growth since the reorganization of the Marine Hospital Service in 1871:

*Operations of the Marine Hospital Service from July 1, 1868, to June 30, 1891.*

Fiscal years.	Number of places at which re- lief was au- thorized.	Number of sick and disabled seamen furnished relief.
Prior to reorganization:		
1868 .....	64	11,535
1869 .....	64	11,356
1870 .....	74	10,560
After reorganization:		
1871 .....	72	14,256
1872 .....	81	13,156
1873 .....	91	13,529
1874 .....	91	14,356
1875 .....	94	15,009
1876 .....	94	16,808
1877 .....	100	15,175
1878 .....	210	18,223
1879 .....	210	20,922
1880 .....	210	24,860
1881 .....		32,613
1882 .....		36,184
1883 .....		40,195
1884 .....		44,761
1885 .....		41,714
1886 .....		43,822
1887 .....		45,314
1888 .....		48,203
1889 .....		49,518
1890 .....		50,671
1891 .....		52,992





Detroit, Mich	1,773	21	307	328	305	9	14	10,552	1,445	2,045	84	12,383.87	149.70
Dubuque, Iowa	69	6	57	63	59	2	2	1,116	6	8	10	1,633.43	
Duluth, Minn	187	2	30	32	30		2	747	155	205	34	1,040.52	63.00
Eastport, Me	5								5	6		5.00	1,091.61
East Saginaw, Mich	61	3	24	27	26		1	838	34	37		979.58	
Edenton, N. C	67		6	6	6			40	61	101		206.25	
Edgartown, Mass	(*)											206.52	57.52
Elizabeth City, N. C	69		1	1	1	1		30	68	92	141	265.00	
Ellsworth, Me	33		3	3	2		1	36	30	146	7	173.00	
Empire City, Oregon	55		10	10	10			224	45	102		663.00	3.42
Erie, Pa	124	6	21	27	26	1		643	97	113		753.31	
Escanaba, Mich	300	5	37	42	39		3	976	258	360		1,551.45	
Eureka, Cal	43		25	25	24			413	18	23		844.00	142.92
Evansville, Ind	997	15	204	219	201	5	13	5,517	778	1,127	13	7,130.79	
Fairport Harbor, Ohio	96								96	152	16	188.53	
Fall River, Mass	1	2	1	1	1			42	67	93		57.00	46.23
Fernandina, Fla	98		29	31	31			800				1,167.98	600.69
Fort Benton, Mont													3.00
Fredericksburg, Va	34	10	7	7	7			233	27	54		425.00	
Gallipolis, Ohio	287	9	160	170	156	3	11	4,204	117	174	6	7,029.41	
Galveston, Tex	497	4	173	182	164	7	11	4,359	315	361	100	7,072.09	8,122.53
Georgetown, D. C	150		45	49	42	3	4	1,254	101	134		1,655.35	83.19
Georgetown, S. C	124		12	12	11		1	182	112	280	11	653.07	15.51
Gloucester, Mass	418								418	509		658.75	985.11
Gov. Hosp'l for the Insane, Washington, D. C	25	18	7	25	1	2	22	7,071				4,545.65	
Grand Haven, Mich	57	3	13	16	15	1		251	41	99	24	706.70	
Green Bay, Wis	42		13	13	13			257	29	40		581.05	
Hartford, Conn	7	1	6	7	6	1	3	200				200.00	
Jacksonville, Fla	112	5	66	71	64	4		1,268	41	67	29	1,511.48	100.53
Keokuk, Iowa	1		1	1	1			58				52.20	
Key West, Fla	1,078	7	106	113	101	9	3	3,175	965	1,195	25	7,503.20	816.60
Lacrosse, Wis	143	16	86	102	93	1	8	1,881	41	149		2,402.65	
Lewes, Del	39		35	35	35			820	4	4	32	1,043.78	
Little Rock, Ark	40		4	4	4			97	36	57		337.00	
Louisville, Ky	909	20	284	304	290	5	9	6,815	605	998	16	11,018.22	
Ludington, Mich	78		1	1	1			47	77	136		280.70	
Marhais, Me	90	1	44	45	41		4	1,199	45	62	24	1,335.15	114.96
Manistee, Mich	46	2	18	20	20			496	26	42	20	669.87	
Marquette, Mich	77	1	11	12	12			333	65	65		693.00	
Marblehead, Mass													39.63
Memphis, Tenn	1,402	10	300	379	338	13	28	9,054	1,023	1,294	10	8,856.19	
Michigan City, Ind	16								16	29		97.52	
Milwaukee, Wis	839	13	318	331	306	2	23	7,427	508	639	61	7,199.70	
Mobile, Ala	864	10	223	233	212	10	11	6,096	631	758	11	10,828.36	4,945.50
Nashville, Tenn	42		10	10	9	1		204	32	49		489.85	
Newark, N. J													417.51
New Bedford, Mass	34								34	53	29	269.89	266.10
New Berne, N. C	346	7	79	86	80		6	1,633	280	447	18	2,159.35	29.22
Newburyport, Mass												26.76	
New Haven, Conn	58	5	39	44	39		5	1,368	14	16	24	1,672.75	259.20
New London, Conn	105	6	39	45	42	1	2	959	60	86		1,172.95	106.47

\*Included in Vineyard Haven.

TABLE II.—EXHIBIT OF OPERATIONS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1891—Continued.

Ports.	Total number of sea-men treated.	Patients in hospital July 1, 1890.	Admitted during the year.	Total treated in hos-pital.	Discharged.	Died.	Remaining in hospi-tal June 30, 1891.	Number of days re-lief in hospital.	Number of seamen re-lieved.	Number of times re-lief was furnished.	Number of persons ex-amine, including phis-i-cally, including phis-i-cally.	Amount expended.	Tonnage tax col-lected.
New Orleans, La.	2,401	46	651	697	649	23	25	12,446	1,704	2,346	71	21,103.27	43,271.31
Newport, Ark.	28		10	10	10			147	18	28		450.35	
Newport, R. I.	70	1	16	17	16	1		289	53	58	7	654.35	74.70
Newport News, Va.	57								57	62		231.42	2,951.22
New York, N. Y.	5,163	111	1,507	1,618	1,460	66	92	44,994	3,545	6,171	166	49,486.31	207,812.38
Norfolk, Va.	1,523	25	443	488	426	15	27	10,603	1,058	1,282	134	13,164.97	2,142.18
Ogdensburg, N. Y.	108		14	14	14			278	94	690		1,174.92	177.27
Oswego, N. Y.	74	2	9	11	9		2	269	63	114	19	1,662.77	1,189.04
Pensacola, Fla.	113	8	92	100	93	2	5	1,935	13	23	24	2,705.47	14,510.90
Perth Amboy, N. J.													
Philadelphia, Pa.	1,660	31	533	564	506	18	40	13,666	1,096	1,417	204	18,632.08	715.88
Pittsburg, Pa.	1,054	15	240	255	239	5	11	4,889	799	1,072	31	7,817.38	55,757.99
Plattsburg, N. Y.													
Plymouth, Mass.	5								5	9	44	100.00	1,984.17
Port Huron, Mich.	186	1	21	22	17		5	381	164	498		598.81	3.00
Portland, Me.	931	11	242	253	232	5	16	6,878	678	868	70	10,534.12	102.42
Portland, Oregon	377	7	159	166	147	6	13	3,910	211	308	18	6,145.32	4,989.36
Portsmouth, N. H.	23	5	15	20	19		1	744	3	3		1,044.00	1,543.06
Port Townsend, Wash.	662	21	349	370	331	15	24	9,232	291	432	12	9,338.39	114.61
Providence, R. I.	169	5	85	90	81	3	6	2,091	79	90		2,281.90	12,936.50
Richmond, Va.	69		20	20	18	1	1	450	49	54		1,015.00	517.77
Rochester, N. Y.													245.16
Rockland, Me.	147	1	92	93	87	2	4	1,494	54	127	7	2,063.27	199.02
Rome, Ga.	41		2	2	2			49	39	48	11	232.45	
Sag Harbor, N. Y.	32		1	1	1				31	471		505.00	
St. Louis, Mo.	1,719	19	495	514	465	24	25	12,805	1,205	1,552	17	12,828.64	
St. Mary's, Ga.													70.26
St. Paul, Minn.	31	4	19	23	20	1	2	694	8	32		1,035.60	
St. Vincent, Minn.													52.82
Salem, Mass.	30		3	3	2		1	98	27	31		179.97	347.91
San Diego, Cal.	138	7	82	89	82	2	5	2,469	49	277		5,081.05	2,204.36
Sandusky, Ohio	113	2	50	52	47		3	977	61	104		1,256.03	
San Francisco, Cal.	2,724	74	823	897	760	54	83	35,927	1,827	2,834	167	29,349.59	41,029.41
Sault Se. Marie, Mich.	196	12	69	81	75	1	5	1,499	115	452		1,858.03	1,858.03
Savannah, Ga.	1,215	14	373	387	364	8	15	6,734	828	1,111	43	9,930.66	9,044.28
Seattle, Wash.	483	4	106	110	99	4	7	2,963	373	606	61	3,525.71	



Shieldsboro, Miss	138	1	24	25	24				311	113				1,385.68	5,966.41
Shreveport, La	16	1	1	2	2				32	14				1,303.67	297.01
Sitka, Alaska	219		11	11	11				30	208				1,456.04	
Solomons, Md															36.06
Stonington, Conn															
Tacoma, Wash	38	2	36	38	38				939					1,494.01	
Tampa, Fla	1									1				7.50	319.52
Tappahannock, Va	148	1	49	50	49				500	98				984.35	
Toledo, Ohio	217	6	81	87	82	3			2,147	130				2,067.80	
Tuckerton, N. J	19		1	1					119	18			14	576.48	
Vicksburg, Miss	118		83	83	80	2			1,350	35			116	1,829.28	
Vineyard Haven, Mass	269	8	107	115	103	6			3,030	154				6,617.61	
Waldoboro, Me															752.22
Washington, D. C.														10,117.52	
Wheeling, W. Va	55	1	33	34	31	1			820	21				1,268.45	
Wilmington, Cal	143	6	82	88	82				2,453	55			41	3,188.75	1,977.93
Wilmington, Del.	3		3	3	3				68					68.00	994.42
Wilmington, N. C	1,104	4	200	204	192	1			3,713	900				6,706.62	2,693.29
Wiscasset, Me	2									2				5.20	146.62
Yaquina, Oregon															1.50
Gulf Quarantine, Chandeleur Island	35	1	21	22	19	1			189	13				(*)	
Key West Quarantine, Fla	52									52					
South Atlantic Quarantine, Sapelo, Ga	2		2	2	1	1			14						

\* Stated elsewhere.

TABLE III.—SUMMARY OF PHYSICAL EXAMINATIONS OF SEAMEN MADE BY MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, YEAR ENDED JUNE 30, 1891.

Summary of examinations and causes of rejection.	Total.	Pilots.	Revenue marine.	Merchant marine.	Life-Saving Service.	Light-house Service.
Summary of examinations:						
Total number examined	2,732	1,182	243	174	1,133	1
Number passed	2,579	1,153	205	147	1,074	1
Number rejected	153	29	38	27	59	0
Causes of rejection:						
Aortic stenosis			3			
Bright's disease					1	
Color blindness		23	9	3	7	
Conjunctivitis			1	1		
Contusion of eye				1		
Contusion of scalp				1		
Contusion of thigh		1				
Diarrhea				1		
Enlargement of spleen			1			
Epilepsy					1	
Fever:						
Intermittent				2		
Malarial				2		
Rheumatic		1				
Gonorrhœa			2	4		
Hemorrhoids			1		1	
Hernia, inguinal				3	4	
Hypertrophy of tonsils					2	
Hydrocele					1	
Inflammation:						
Abdomen				1		
Lymph glands, groin			2			
Kidneys			1		1	
Incontinence of urine				1		
Myopia		2	1		6	
Myopia—astigmatism		2				
Paraplegia					1	
Pharyngitis—chronic					1	
Rheumatism:						
Chronic					3	
Neuralgic					3	
Strabismus			1			
Stricture, urethra				1		
Syphilis:						
Primary				1		
Secondary			4	1		
Rheumatic				1		
Systole, cardiac					1	
Tuberculosis				1		
Tonsilar enlargement—chronic			1		1	
Ulcer, penis			2			
Valvular disease, heart			1		2	
Varicocele			4		14	
Varicose veins			1		2	
General disability			3	2	7	



TABLE IV.—STATEMENTS BY DISTRICTS OF THE NUMBER OF PATIENTS TREATED DURING THE YEAR ENDED JUNE 30, 1891.

Districts.	Total cases.	Patients in hos- pital. July 1, 1890.	Admitted dur- ing the year.	Total num ber treated in hos- pital.	Discharged.	Died.	Patients in hos- pital, June 30, 1891.	Number of days hospi tal re- lief furnished.	Number of sea- men furnished office relief.
Grand total .....	52,992	926	14,423	15,349	13,945	488	916	409,418	37,643
North Atlantic .....	4,938	102	1,697	1,799	1,639	45	115	53,397	3,139
Middle Atlantic .....	7,100	154	2,178	2,332	2,100	88	144	62,532	4,768
South Atlantic .....	9,265	130	2,213	2,343	2,142	60	141	61,362	6,922
The Gulf .....	5,352	82	1,308	1,390	1,277	54	59	29,293	3,962
The Ohio .....	5,147	83	1,412	1,495	1,381	38	76	37,250	3,652
The Mississippi .....	4,250	69	1,375	1,444	1,315	53	76	32,656	2,806
The Great Lakes .....	12,138	182	2,512	2,694	2,466	66	162	72,979	9,444
The Pacific .....	4,713	123	1,705	1,828	1,605	82	141	59,746	2,885
The quarantine stations ..	89	1	23	24	20	2	2	203	65

TABLE V.—RATIO OF PATIENTS TREATED IN HOSPITAL IN EACH DISTRICT.

Districts.	Per cent of total number of patients.	Districts.	Per cent of total number of patients.
North Atlantic .....	11.72	The Mississippi .....	9.41
Middle Atlantic .....	15.19	The Great Lakes .....	17.55
South Atlantic .....	15.25	The Pacific .....	11.91
The Gulf .....	9.06	The quarantine stations .....	.16
The Ohio .....	9.74		

TABLE VI.—AVERAGE DURATION OF TREATMENT IN HOSPITAL IN EACH DISTRICT.

Districts.	Average number of days re- lief fur- nished to each patient.	Districts.	Average number of days re- lief fur- nished to each patient.
North Atlantic .....	29.68	The Mississippi .....	22.62
Middle Atlantic .....	26.81	The Great Lakes .....	27.09
South Atlantic .....	26.19	The Pacific .....	32.68
The Gulf .....	21.07	The quarantine stations .....	12.58
The Ohio .....	24.92		

TABLE VII.—TABULAR STATEMENT BY DISTRICTS OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1891.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Grand Total of all Cases .....	926	14,423	9,210	4,374	361	488	916	37,643	52,992
GENERAL DISEASES .....	393	6,560	3,994	2,172	144	257	386	16,892	23,845
LOCAL DISEASES .....	410	5,830	3,683	1,765	184	205	403	17,880	24,120
POISONS AND POISONED WOUNDS .....	3	25	16	10	1	—	1	48	76
INJURIES AND AMPUTATIONS .....	120	2,008	1,517	427	32	26	126	2,823	4,951

NORTH ATLANTIC.

TOTAL CASES .....	102	1,697	1,082	517	40	45	115	3,139	4,938
General Diseases .....	43	668	355	252	15	34	55	1,158	1,869
Measles .....	—	6	6	—	—	—	—	6	12
Influenza .....	—	27	22	2	1	—	2	72	99
Mumps .....	—	1	1	—	—	—	—	2	3
Diphtheria .....	—	2	1	—	—	1	—	—	2
Simple continued fever .....	—	10	9	1	—	—	—	5	15
Enteric fever .....	1	60	48	1	—	7	5	21	82
Typho-malarial fever .....	1	1	2	—	—	—	—	—	2
Sporadic cholera .....	—	—	—	—	—	—	—	2	2
Dysentery .....	—	12	11	—	—	—	1	9	21
Malarial intermittent fever .....	2	57	53	2	1	—	3	81	140
Malarial remittent fever .....	1	22	21	—	—	—	2	4	27
Malarial cachexia .....	—	5	2	3	—	—	—	7	12
Beri-Beri .....	—	5	3	1	—	1	—	8	13
Erysipelas :	—	—	—	—	—	—	—	—	—
Simple .....	—	7	7	—	—	—	—	8	15
Phlegmonous .....	—	8	6	2	—	—	—	—	8
Septicæmia .....	—	1	—	—	1	—	—	—	1
Syphilis :	—	—	—	—	—	—	—	—	—
Primary .....	6	26	3	29	—	—	—	41	73
Secondary .....	4	84	4	81	—	—	3	154	242
Gonorrhœa .....	3	52	36	13	1	—	5	318	373
Animal parasites .....	—	2	2	—	—	—	—	2	4
Effects of excessive venery .....	—	1	—	—	—	—	1	1	2
Scurvy .....	—	3	3	—	—	—	—	1	4
Alcoholism .....	—	12	8	2	1	1	—	12	24
Debility .....	—	2	2	—	—	—	—	31	33
Rheumatic fever .....	1	30	27	2	—	—	2	8	39
Rheumatism .....	9	123	71	44	1	—	16	287	419
Osteo-arthritis .....	2	3	1	2	—	1	1	1	6
Cysts .....	—	—	—	—	—	—	—	2	2
Non-malignant new growth .....	—	5	3	2	—	—	—	13	18
Malignant new growth .....	—	4	3	—	—	—	1	5	9
Tubercle .....	13	96	—	64	9	23	13	47	156
Scrofula .....	—	—	—	—	—	—	—	2	2
Anæmia .....	—	1	—	1	—	—	—	8	9
Local Diseases .....	50	806	557	220	22	10	47	1,667	2,523
DISEASES OF THE NERVOUS SYSTEM .....	4	42	17	19	1	1	8	93	139
Congestion of brain .....	—	—	—	—	—	—	—	1	1
Anæmia .....	—	—	—	—	—	—	—	2	2
Inflammation :	—	—	—	—	—	—	—	—	—
Of cerebral membranes .....	—	1	1	—	—	—	—	—	1
Of spinal cord and its membranes .....	—	—	—	—	—	—	—	2	2
Myelitis .....	—	1	1	—	—	—	—	—	1
Neuritis .....	1	2	1	2	—	—	—	8	11
Softening of brain or cord .....	—	—	—	—	—	—	—	1	1
Sclerosis .....	—	1	—	—	—	—	1	—	1
Progressive muscular atrophy .....	—	1	—	—	—	—	1	—	1
Spastic spinal paralysis .....	—	1	—	—	—	1	—	—	1
Locomotor ataxy .....	1	—	—	—	—	—	—	1	2
Apoplexy .....	—	4	—	3	—	—	1	—	4
Paralysis .....	—	1	—	1	—	—	—	2	3
Hemiplegia .....	2	1	—	1	—	—	2	5	8



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## NORTH ATLANTIC.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE NERVOUS SYSTEM—Continued.									
Paraplegia		1		1					1
Local paralysis								5	5
Anæsthesia								1	1
Eclampsia		1	1						1
Spasm of muscle								3	3
Neuralgia		6	3	3				29	35
Facial		4	3	1				15	19
Sciatica		13	6	6			1	4	17
Vertigo		1	1					3	4
Megrim								6	6
Epilepsy		3		1		1	1	5	8
MENTAL DISEASES	2	3	1	1	1		2	3	8
Hypochondriasis		1		1				1	2
Insanity		1	1					1	2
Melancholia	1						1		1
Dementia	1	1			1		1	1	3
DISEASES OF THE EYE		22	9	8	2		3	57	79
Conjunctivitis		6	1	3			2	27	33
Keratitis								3	3
Ulcer of cornea		3	1	1			1	1	4
Opacity of cornea								1	1
Iritis		9	7	2				3	12
Atrophy of optic disk or papilla								1	1
Inflammation of optic nerve		1			1				1
Neuro-retinitis								5	5
Cataract		2		1	1			1	3
Ametropia								3	3
Amaurosis								1	1
Squint								1	1
Fistula, lachrymal		1		1					1
Hæmatoma								1	1
Blepharitis								4	4
Stye								1	1
Abscess of eyelid								1	1
Chalazion								3	3
DISEASES OF THE EAR		8	4	3	1			19	27
Inflammation of the external meatus:									
Acute								1	1
Chronic								2	2
Abscess of the external meatus								2	2
Subaceous cyst		2	2						2
Accumulation of wax		1	1					8	9
Inflammation of the middle ear		4	1	3				3	7
Perforation of membrana tympani		1			1			1	2
Tinnitus								1	1
Deafness								1	1
DISEASES OF THE NOSE:		1	1					20	21
Inflammation								1	1
Nasal catarrh		1	1					19	20
DISEASES OF THE CIRCULATORY SYSTEM	7	57	4	50	2	5	3	56	120
Pericarditis								1	1
Valvular disease:									
Aortic	3	12		13		2		1	16
Mitral	2	35		32	1	2	2	34	71
Pulmonic								1	1
Hypertrophy of heart		1		1					1
Palpitation and irregular action of heart		1	1					6	7

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

NORTH ATLANTIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE CIRCULATORY SYSTEM—Continued.									
Arteritis .....	1	1	—	1	—	—	1	—	2
Degeneration of arteries .....	1	—	—	1	—	—	—	1	2
Aneurism of arteries .....	—	4	1	1	1	1	—	3	7
Obstruction of arteries .....	—	—	—	—	—	—	—	1	1
Phlebitis .....	—	—	—	—	—	—	—	1	1
Varix .....	—	3	2	1	—	—	—	7	10
DISEASES OF THE RESPIRATORY SYSTEM									
Laryngitis:	7	113	80	30	1	2	7	283	403
Acute .....	—	1	—	1	—	—	—	1	2
Chronic .....	—	—	—	—	—	—	—	3	3
Catarrhal .....	—	—	—	—	—	—	—	12	12
Bronchitis:	—	—	—	—	—	—	—	—	—
Acute .....	1	56	45	10	—	—	2	138	195
Chronic .....	2	14	6	7	1	—	2	35	51
Catarrhal .....	—	12	12	—	—	—	—	46	58
Spasmodic asthma .....	—	—	—	—	—	—	—	8	8
Hæmorrhage of lungs .....	1	1	1	1	—	—	—	2	4
Pneumonia .....	1	14	12	—	—	1	2	4	19
Cirrrosis of lung .....	—	—	—	—	—	—	—	1	1
Pneumonic phthisis, chronic .....	1	3	—	3	—	1	—	—	4
Pleurisy:	—	—	—	—	—	—	—	—	—
Acute .....	—	6	4	2	—	—	—	27	33
Chronic .....	1	5	—	6	—	—	—	6	12
Empyema .....	—	1	—	—	—	—	1	—	1
DISEASES OF THE DIGESTIVE SYSTEM									
Ulcer of the lips .....	3	128	97	25	6	—	3	448	579
Stomatitis .....	—	3	3	—	—	—	—	1	1
Ulcerative stomatitis .....	—	1	1	—	—	—	—	2	5
Cyst of the mouth .....	—	1	1	—	—	—	—	—	1
Caries of dentine and cementum .....	—	1	—	—	—	—	1	9	10
Inflammation of dental periosteum .....	—	—	—	—	—	—	—	2	2
Abscess of dental periosteum .....	—	2	2	—	—	—	—	5	7
Toothache .....	—	—	—	—	—	—	—	3	3
Inflammation of the tongue .....	—	—	—	—	—	—	—	1	1
Hypertrophy of tonsils .....	—	—	—	—	—	—	—	1	1
Sore throat .....	—	9	7	2	—	—	—	18	27
Quinsy .....	—	3	3	—	—	—	—	1	4
Follicular tonsillitis .....	—	10	9	1	—	—	—	20	30
Inflammation of salivary glands .....	—	1	1	—	—	—	—	—	1
Salivary fistula .....	—	—	—	—	—	—	—	1	1
Follicular inflammation of the pharynx .....	—	2	1	1	—	—	—	15	17
Hæmorrhage of the stomach .....	—	1	1	—	—	—	—	—	1
Inflammation of the stomach .....	—	7	4	2	—	—	1	11	18
Dyspepsia .....	1	8	6	2	1	—	—	119	128
Gastrodynia .....	—	1	1	—	—	—	—	—	1
Hæmorrhage of the intestines .....	—	1	1	—	—	—	—	1	2
Inflammation of the intestines:	—	—	—	—	—	—	—	—	—
Catarrhal .....	—	1	1	—	—	—	—	21	22
Ulcerative .....	—	10	9	—	—	—	1	7	17
Abscess in the subperitoneal tissue .....	—	—	—	—	—	—	—	1	1
Hernia .....	—	5	3	2	—	—	—	60	65
Diarrhœa .....	1	37	27	8	3	—	—	64	102
Constipation .....	—	—	—	—	—	—	—	29	29
Colic .....	—	2	1	—	1	—	—	8	10
Abscess of the rectum .....	—	1	—	1	—	—	—	—	1
Ulceration of the rectum .....	—	1	—	1	—	—	—	—	1
Piles:	—	—	—	—	—	—	—	—	—
Internal .....	—	4	1	3	—	—	—	6	10
External .....	—	4	2	1	1	—	—	25	29



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## NORTH ATLANTIC.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Fistula in ano .....		1	1					3	4
Fissure of the anus .....		1	1					1	2
Pruritus ani .....								1	1
Congestion of the liver .....		1	1					4	5
Hepatitis .....		2	2					1	3
Abscess of the liver .....								1	1
Jaundice .....		4	3	1				5	9
Inflammation of hepatic ducts and gallbladder .....		1	1					1	2
Peritonitis .....	1	2	3						3
DISEASES OF THE LYMPHATIC SYSTEM.									
Abscess of the spleen .....	7	82	68	13	2	1	5	69	158
Hypertrophy of lymph glands .....		1				1			1
Inflammation of lymph vessels .....		1		1				6	6
Inflammation of lymph glands .....	3	37	32	5	2		1	49	89
Suppuration of lymph glands .....	4	43	36	7			4	12	59
DISEASES OF THE THYROID BODY									
Goitre .....								1	1
								1	1
DISEASES OF THE URINARY SYSTEM.									
Acute nephritis .....	3	14	5	9		1	2	66	83
Bright's disease .....								3	3
Abscess of kidney .....	1	6	1	5			1	17	24
Calculus in ureter .....	1			1				1	2
Hæmaturia .....								2	2
Lithuria .....								2	2
Hæmorrhage of bladder .....								1	1
Inflammation of bladder:									
Acute .....		6	4	1			1	14	20
Subacute .....								12	12
Chronic .....	1	2		2		1		8	11
Irritability of bladder .....								1	1
Retention of urine .....								1	1
Incontinence of urine .....								3	3
DISEASES OF THE GENERATIVE SYSTEM.									
Urethritis .....	10	167	125	40	5		7	235	412
Gleet .....		3		2			1	4	4
Stricture of urethra:								12	15
Organic .....	4	35	14	22	2		1	35	74
Spasmodic .....	1		1						1
Urinary fistula .....		1	1						1
Abscess of prostate gland .....		1	1						1
Œdema of the penis .....		1		1					1
Inflammation of glans penis .....		2	2					2	4
Ulcer of penis .....	2	72	58	12			4	125	199
Phimosis .....		4	4						4
Paraphimosis .....		1		1				2	3
Abscess of the scrotum .....		1			1			1	2
Varicocele .....		2	1		1			10	12
Hydrocele of tunica vaginalis .....	1	5	5				1	9	15
Orchitis:									
Acute .....		12	12					12	24
Chronic .....		5	4	1				2	7
Epididymitis .....	2	21	21	1	1			9	32
Spermatorrhœa .....		1	1					11	12
Impotence .....								1	1
DISEASES OF THE ORGANS OF LOCOMOTION									
Periostitis .....	1	26	22	4	1			30	57
Necrosis .....		5	4	1				5	10
	1	7	6	1	1			2	10

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

NORTH ATLANTIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE ORGANS OF LOCOMOTION—Continued.									
Synovitis:									
Acute		5	5					1	6
Chronic		3	2	1				6	9
Ankylosis		1		1				1	2
Psoas, lumbar, and other abscesses		2	2						2
Angular curvature of spine								1	1
Abscess of muscles								1	1
Inflamed bursa		1	1					8	9
Thecal abscess								2	2
Bunion		2	2					3	5
DISEASES OF THE CONNECTIVE TISSUE	3	29	26	5			1	76	108
Inflammation	1	8	6	3				44	53
Abscess	2	21	20	2			1	32	55
DISEASES OF THE SKIN	2	109	92	13			6	182	293
Erythema		2	2					1	3
Urticaria								6	6
Eczema	1	13	11	3				28	42
Intertrigo								1	1
Impetigo								1	1
Ecthyma		1		1					1
Pityriasis		1	1					3	4
Prurigo								1	1
Psoriasis		2		2				4	6
Herpes								6	6
Zona		1	1						1
Acne								3	3
Sycosis		1	1					2	3
Alopecia								1	1
Frostbite		20	19	1				6	26
Ulcer		36	28	4			4	60	96
Fissures								2	2
Boil		11	9	1			1	24	35
Carbuncle	1	5	5	1				8	14
Gangrene		1					1		1
Whitlow		7	7					20	27
Onychia		5	5					2	7
Corn								1	1
Wen		1	1					2	3
Pruritus		2	2						2
PARASITIC DISEASES OF THE SKIN	1	5	6					30	36
Ringworm								8	8
Tinea versicolor								2	2
Itch	1	5	6					19	25
Phthiriasis								1	1
Poisons		2	2					1	3
Organic substances		1	1						1
Vegetable poisons		1	1					1	2
Injuries	8	221	167	45	3	1	13	311	540
GENERAL INJURIES		13	12	1				9	22
Burns and scalds		7	7					6	13
Effects of cold		2	2						2
Effects of chemical irritants								1	1
Heat-stroke		2	2					2	4
Exhaustion		2	1	1					2



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

NORTH ATLANTIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
<b>Injuries.</b>									
LOCAL INJURIES.....	8	208	155	44	3	1	13	302	518
Contusion of nerves.....								1	1
Wound of nerve.....		1	1						1
Rupture of veins.....		1	1						1
Strain of muscles.....		1		1				4	5
Rupture of muscles.....								1	1
Strain of tendons.....								1	1
Abrasion of skin.....								3	3
Contusion of scalp.....								1	1
Scalp wound:									
Bone not exposed.....		5	5					7	12
Bone exposed.....		4	2	1			1	4	8
Contusion of skull.....		1			1			1	2
Fracture of the base of the skull.....								1	1
Concussion of brain.....		3	3					1	4
Contusion of face.....		1	1					4	5
Wound of face and mouth.....		6	4	1	1			9	15
Injuries of the alveoli and teeth.....		1	1						1
Contusion of the eye.....								2	2
Foreign body in cornea or conjunctiva.....								6	6
Foreign body in external meatus.....								1	1
Contusion of soft parts of neck.....								1	1
Contusion of the chest.....		9	6	3				22	31
Fracture of the ribs.....		5	3	1			1	4	9
Wound of parietes of chest.....		1		1					1
Contusion of back.....		11	8	3				11	22
Sprain of back.....		1	1					6	7
Dislocation of spine.....	1	1		2					2
Concussion of cord.....	1	1	1	1				1	3
Contusion of abdomen.....		2	1	1				4	6
Contusion of the pelvis.....		1	1					1	2
Contusion of testicle.....		1	1					5	6
Contusion of upper extremities.....	3	24	17	8			2	61	88
Sprain of the shoulder.....								3	3
Sprain of the elbow.....		1		1				2	3
Sprain of the wrist.....		2	2					12	14
Sprain of the fingers.....								3	3
Wound of the upper extremities.....		23	19	3			1	28	51
Fracture of the clavicle.....		4	2		1	1		3	7
Fracture of the scapula.....								1	1
Fracture of the humerus.....		4	3				1	1	5
Fracture of the radius.....								1	1
Fracture of the ulna.....		1					1		1
Fracture of both bones of forearm.....		2	2						2
Fracture of carpus, metacarpus, and phalanges.....		3	2				1	4	7
Dislocation of the clavicle.....		1	1					1	2
Dislocation of the humerus.....		6	5				1	5	11
Dislocation of the ulna.....								1	1
Dislocation of the phalanges of thumb.....								1	1
Dislocation of the phalanges of fingers.....								1	1
Contusion of the lower extremities.....		21	17	4				30	51
Sprain of the hip.....		1	1						1
Sprain of the knee.....		5	3	2				7	12
Sprain of the ankle.....	1	16	9	7			1	6	23
Sprain of the foot.....		2	2					2	4
Wound of the lower extremities.....		11	10	1				6	17
Fracture of femur.....	1	5	4				2	1	7
Fracture of patella.....								1	1
Fracture of leg, both bones.....	1	5	5				1	5	11
Fracture of tibia alone.....		5	5					10	15
Fracture of fibula alone.....		3	2	1					3
Fracture of tarsus.....		1		1					1
Fracture of metatarsus.....		3	3						3
Dislocation of the femur at the hip.....		1		1				2	3





TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## MIDDLE ATLANTIC.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE NERVOUS SYSTEM—Continued.									
Neuralgia.....		2	2					53	55
Facial.....		3	3					13	16
Sciatica.....		7	1	5			1	3	10
Vertigo.....		1	1						1
Megrim.....		2	2					6	8
Epilepsy.....		3		3					3
Hysteria.....		1			1				1
MENTAL DISEASES.....	1	5		2	3		1	2	8
Insanity.....		2			1		1		2
Melancholia.....	1	2		2	1			2	5
Dementia.....		1			1				1
DISEASES OF THE EYE.....	2	16	7	5	5		1	48	66
Conjunctivitis.....		8	4	2	2			42	50
Keratitis.....		1	1						1
Ulcer of cornea.....		2	2						2
Opacity of cornea.....		1		1					1
Iritis.....		1					1	1	2
Synechia.....	1				1				1
Atrophy of optic disk or papilla.....	1				1				1
Neuro-retinitis.....		2		2					2
Asthenopia.....								2	2
Abscess of eyelid.....								3	3
Ectropion.....		1			1				1
DISEASES OF THE EAR.....		13	9	4				26	39
Inflammation of the external meatus, acute.....		2	1	1				4	6
Abscess of the external meatus.....		4	4						4
Inflammation of the middle ear.....		5	4	1				10	15
Perforation of membrana tympani.....		1		1				1	2
Deafness.....		1		1				11	12
DISEASES OF THE NOSE.....		3	2	1				31	34
Epistaxis.....		1	1						1
Inflammation.....		1		1				3	4
Nasal catarrh.....								28	28
Ulceration.....		1	1						1
DISEASES OF THE CIRCULATORY SYSTEM.....	5	38	5	22	3	10	3	36	79
Pericarditis.....		1		1				2	3
Valvular disease:									
Aortic.....		8		3	2	2	1	1	9
Mitral.....	3	24	2	15	1	7	2	26	53
Angina pectoris.....								1	1
Palpitation and irregular action of heart.....		1		1				3	4
Aneurism of arteries.....	2		1			1			2
Rupture of arteries.....		1		1					1
Phlebitis.....								1	1
Varix.....		3	2	1				2	5
DISEASES OF THE RESPIRATORY SYSTEM.....	8	178	108	42	7	22	7	389	575
Hay asthma.....		1		1					1
Laryngitis:									
Acute.....		6	3	1	1		1	7	13
Chronic.....	1			1					1
Bronchitis:									
Acute.....	2	62	50	11	1	1	1	275	339
Chronic.....		21	9	10			2	73	94
Catarrhal.....								5	5
Spasmodic asthma.....	1	8	3	4		2		6	15
Passive congestion of lung.....		1	1						1





TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

MIDDLE ATLANTIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE URINARY SYSTEM—Continued.									
Diabetes insipidus .....	1	1		1			1	5	7
Hematuria .....		1	1						1
Inflammation of bladder:									
Acute .....	1	3		2	2			9	13
Sub-acute .....		1		1					1
Chronic .....		1					1	1	2
Retention of urine .....								2	2
Incontinence of urine .....		2		2				23	25
DISEASES OF THE GENERATIVE SYSTEM	5	178	108	61	4	2	8	425	608
Urethritis .....								9	9
Gleet .....								5	5
Stricture of urethra :									
Organic .....	1	40	22	13	1	1	4	62	103
Traumatic .....		1	1						1
Spasmodic .....		1	1						1
Urinary fistula .....		4	1	2		1		2	6
Hypertrophy of prostate gland .....	1	1		2					2
Acute inflammation of prostate gland.								1	1
Edema of the penis .....								1	1
Inflammation of the penis .....		1		1				2	3
Inflammation of glans penis .....								2	2
Ulcer of penis .....	1	78	43	33	1		2	272	351
Phimosis .....		6	6					5	11
Paraphimosis .....		4	4						4
Abscess of the scrotum .....		1	1						1
Varicocele .....		3	1	1	1			12	15
Hydrocele of tunica vaginalis .....	1	3	3	1				8	12
Orchitis:									
Acute .....		17	12	4			1	17	34
Chronic .....								1	1
Epididymitis .....	1	17	13	3	1		1	7	25
Abscess of testicle .....								1	1
Spermatorrhea .....		1		1				2	3
Impotence .....								13	13
Inflammation of the ovary .....								2	2
Leucorrhea .....								1	1
DISEASES OF THE ORGANS OF LOCOMOTION									
Ostitis .....	3	30	19	9	1		4	25	58
Periostitis .....		1	1						1
Caries .....	1	1		1	1				2
Necrosis .....		3	2	1					3
Synovitis:									
Acute .....		6	4	1			1	1	7
Chronic .....	1	8	4	3			2	9	18
Ankylosis .....								1	1
Caries and necrosis of spine .....		1	1						2
Angular curvature of spine .....		1		1					1
Posterior curvature of spine .....	1						1		1
Inflammation of muscles .....		1		1				5	6
Inflamed bursa .....		7	6	1				7	14
Bunion .....								1	1
DISEASES OF THE CONNECTIVE TISSUE									
Edema .....	5	73	50	22		1	5	102	180
Inflammation .....		3	1	1		1		3	6
Abscess .....	2	18	15	5				25	45
	3	52	34	16			5	74	129
DISEASES OF THE SKIN									
Urticaria .....	3	85	50	25	1		12	202	290
Eczema .....								7	7
Ecthyma .....		3	1	2				43	46
		1		1					1

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

MIDDLE ATLANTIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE SKIN—Continued.									
Psoriasis .....								20	20
Zona .....								1	1
Sycosis .....		2		1			1	1	3
Frostbite .....		4	3	1				5	9
Ulcer .....	3	61	38	16	1		9	72	136
Boil .....		6	4	2				38	44
Carbuncle .....		2		1			1	5	7
Whitlow .....		3	1	1			1	7	10
Onychia .....		3	3						3
Lupus .....								1	1
Wen .....								2	2
PARASITIC DISEASES OF THE SKIN									
Ringworm .....		8	6	2				25	33
Favus .....		1	1					11	12
Tinea versicolor .....		1	1						1
Itch .....		1		1					1
Phthiriasis .....		3	3					11	14
Unclassified .....								3	3
Poisons .....	1	4	1	3			1	5	10
Metals and their salts .....	1	4	1	3			1	5	10
Injuries .....	15	212	149	63	4		11	416	643
GENERAL INJURIES									
Burns and scalds .....	3	10	10	2			1	30	43
Effects of cold .....	3	9	9	2			1	30	42
		1	1						1
LOCAL INJURIES									
Strain of tendons .....	12	202	139	61	4		10	386	600
Abrasion of skin .....		1	1					1	2
Contusion of scalp .....								1	1
Contusion of scalp .....		3	1	2				2	5
Scalp wound:									
Bone not exposed .....		8	4	3	1			8	16
Bone exposed .....		3	2	1					3
Fracture of the vault of the skull .....		1	1						1
Contusion of face .....		2	1	1					2
Wound of face and mouth .....		3	3					13	16
Fracture of facial bones .....		1	1						1
Contusion of the eye .....		1	1					1	2
Foreign body in cornea or conjunctiva.								1	1
Wound of eyelid .....								1	1
Wound of the cornea .....		2	1	1					2
Contusion of pinna .....								1	1
Rupture of membrana tympani .....		1	1						1
Wound of neck .....		1		1				2	3
Foreign body in the œsophagus .....								1	1
Contusion of the chest .....		13	12	1				19	32
Dislocation of costal cartilages .....								1	1
Fracture of the ribs .....		7	5	1			1	8	15
Wound of parietes of chest .....		1	1						1
Contusion of back .....		9	7	1				4	13
Sprain of back .....		6	4	2				11	17
Wound of back .....		1	1					2	3
Fracture of spine .....		2		1					2
Concussion of cord .....		1		1					1
Wound of parietes of abdomen .....								2	2
Contusion of the urethra, perineum, scrotum, and penis.		1						1	1
Wound of the urethra, perineum, scrotum, and penis.		1	1					14	15
Contusion of upper extremities .....		15	8	4	1		2	37	52









TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## SOUTH ATLANTIC.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE EAR		6	4	2				44	50
Inflammation of the external meatus—									
Acute		4	3	1				7	11
Chronic								3	3
Abscess of the external meatus		1		1				4	5
Accumulation of wax								14	14
Inflammation of the middle ear		1	1					13	14
Obstruction of Eustachian tube								1	1
Perforation of membrana tympani								1	1
Tinnitus								1	1
DISEASES OF THE NOSE		1	1					41	42
Epistaxis								6	6
Inflammation								1	1
Nasal catarrh		1	1					33	34
Ozæna								1	1
DISEASES OF THE CIRCULATORY SYSTEM	6	39	5	30	2	7	1	90	135
Endocarditis		2	1			1		2	4
Valvular disease:									
Aortic	2	6		5		3		7	15
Mitral	1	13		11		2	1	36	50
Hypertrophy of heart		1		1					1
Inflammation of heart		1		1					1
Angina pectoris								2	2
Palpitation and irregular action of heart	1	3	1	3				26	30
Degeneration of arteries	1			1					1
Aneurism of arteries	1	11	1	8	2	1		10	22
Obstruction of arteries								2	2
Phlebitis								1	1
Varix		2	2					4	6
DISEASES OF THE RESPIRATORY SYSTEM	4	135	105	22	3	7	2	659	798
Laryngitis:									
Acute		4	3	1				9	13
Catarrhal		1		1				7	8
Bronchitis:									
Acute	1	56	51	4	1	1		438	495
Chronic		10	3	4	1	1	1	95	105
Catarrhal	2	21	20	3				75	98
Spasmodic asthma		4	1	2			1	7	11
Hemorrhage of lung		1		1				2	3
Pneumonia	1	20	16	1		4		1	22
Pneumonic phthisis, chronic		3	1	2				4	7
Emphysema								1	1
Pleurisy:									
Acute		12	8	2	1	1		11	23
Chronic		3	2	1				9	12
DISEASES OF THE DIGESTIVE SYSTEM	4	171	126	37	5	3	4	1062	1237
Stomatitis		2	1	1				7	9
Ulcerative stomatitis		1	1					2	3
Cyst of the mouth								2	2
Abscess of the antrum								2	2
Caries of dentine and cementum								38	38
Inflammation of dental periosteum		1					1		1
Abscess of dental periosteum		2	2					8	10
Inflammation of gums and alveoli								3	3
Ulceration of gums and alveoli								3	3
Toothache								7	7
Ulcer of the tongue								1	1
Hypertrophy of tonsils								4	4
Sore throat		2	1	1				71	73







TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

SOUTH ATLANTIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE SKIN—Continued.									
Alopecia .....								1	1
Chilblain .....								1	1
Frostbite .....		8	8						8
Ulcer .....	5	19	13	8			3	53	77
Fissures .....								4	4
Boil .....		19	16	2			1	70	89
Carbuncle .....		4	2	2				8	12
Whitlow .....		14	14					22	36
Onychia .....								1	1
Lupus .....		1		1					1
Wen .....								3	3
Pruritus .....								3	3
PARASITIC DISEASES OF THE SKIN .....									
Ringworm .....		7	6	1				54	61
Itch .....		2	2					15	15
Phthiriasis .....								36	38
Unclassified .....		5	4	1				2	2
								1	6
Poisons .....		1	1					6	7
Metals and their salts .....									
Phosphorus .....								2	2
Organic substances .....								1	1
Vegetable poisons .....		1	1					1	1
								3	3
POISONED WOUNDS .....									
Venomous animals .....		1	1					3	4
		1	1					3	4
Injuries .....	6	239	192	36	5	2	10	352	597
GENERAL INJURIES .....									
Burns and scalds .....	1	25	20	4		1	1	31	57
Effects of cold .....		14	10	4				16	30
Effects of chemical irritants .....								4	4
Heat stroke .....								4	4
Multiple injury .....	1	7	7				1	5	13
Exhaustion .....		3	2			1		2	5
		1	1						1
LOCAL INJURIES .....									
Strain of muscles .....	5	214	172	32	5	1	9	321	540
Strain of tendons .....		3		3				26	29
Foreign body in subcutaneous tissue .....								2	2
Contusion of scalp .....								5	5
Scalp wound, bone not exposed .....		1	1					1	1
Fracture of the vault of the skull .....		11	10	1				15	26
Fracture of the base of the skull .....		2	2						2
Fracture of the base of the skull .....		1	1						1
Compression of brain .....		1				1			1
Contusion of face .....		2	1	1				2	4
Wound of face and mouth .....		5	5					15	20
Fracture of facial bones .....		1	1					1	2
Contusion of the eye .....		1	1					1	2
Foreign body in cornea or conjunctiva .....								8	8
Wound of eyelid .....								3	3
Wound of the sclerotic .....								1	1
Rupture of membrana tympani .....								1	1
Foreign body in external meatus .....								2	2
Contusion of soft parts of neck .....								2	2
Foreign body in the œsophagus .....								1	1
Contusion of the chest .....		12	10	1	1			14	26
Fracture of the ribs .....	1	9	4	5			1	3	13
Wound of parietes of chest .....		2	2						2
Contusion of back .....	2	3	4	1				14	19
Sprain of back .....		7	6	1				5	12



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

SOUTH ATLANTIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries.									
LOCAL INJURIES—Continued.									
Wound of back.....								1	1
Wound of spine.....		1		1					1
Concussion of cord.....		2	2						2
Contusion of abdomen.....								1	1
Wound of the urethra, perineum, scrotum, and penis.....		2	2						2
Fracture and dislocation of pelvis.....		1	1						1
Contusion of testicle.....		1	1						1
Contusion of upper extremities.....		5	4			1	26		31
Sprain of the shoulder.....		2		1	1		3		5
Sprain of the elbow.....		3	3						3
Sprain of the wrist.....		5	4	1			16		21
Sprain of the fingers.....							1		1
Wound of the upper extremities.....		47	41	6			74		121
Fracture of the clavicle.....		2	1	1					2
Fracture of the humerus.....		5	4			1			5
Fracture of the radius.....		4	2	1	1				4
Fracture of the ulna.....		2	1			1			2
Fracture of both bones of forearm.....		2	1			1			2
Fracture of carpus, metacarpus, and phalanges.....		2	1			1	4		6
Dislocation of the humerus.....		3	3				1		4
Dislocation of the carpus.....							1		1
Dislocation of the metacarpus.....							1		1
Contusion of the lower extremities.....		15	13	2			32		47
Sprain of the hip.....		1	1				2		3
Sprain of the knee.....		2	1	1			2		4
Sprain of the ankle.....		12	12				15		27
Wound of the lower extremities.....		18	14	2	2		19		37
Fracture of femur.....		3	2			1			3
Fracture of cervix femoris.....		2	2						2
Fracture of leg, both bones.....	1	8	5	2		2			9
Fracture of tibia alone.....		1	1						1
Fracture of fibula alone.....		1	1						1
Fracture of metatarsus.....							1		1
Dislocation of the knee.....		1		1					1
Dislocation of the foot at the ankle.....	1		1						1

THE GULF.

TOTAL CASES.....	82	1,308	811	425	41	54	59	3,962	5,352
General Diseases.....	32	676	425	218	18	26	21	1,716	2,424
Cow-pox.....								25	25
Measles.....		9	9					3	12
Dengue.....		4	3	1				7	11
Influenza.....		48	35	12		1		151	199
Mumps.....								3	3
Enteric fever.....		3	3						3
Typho-malarial fever.....		3	2	1					3
Sporadic cholera.....								3	3
Dysentery.....	1	28	16	9	1	2	1	38	67
Malarial intermittent fever.....	9	223	210	15	2	2	3	480	712
Malarial remittent fever.....	2	36	31	4		2	1	36	74
Malarial cachexia.....	1	9	3	4	1	1	1	27	37
Phagedæna.....		1	1						1
Erysipelas—simple.....		3	3					3	6
Septicæmia.....								1	1
Syphilis:									
Primary.....	4	58	30	27	2		3	41	103
Secondary.....	2	75	7	64	2		4	206	283





TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## THE GULF.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE NOSE								25	25
Epistaxis								1	1
Inflammation								4	4
Nasal catarrh								19	19
Ozæna								1	1
DISEASES OF THE CIRCULATORY SYSTEM	2	22		17		5	2	37	61
Pericarditis		1		1					1
Valvular disease:									
Aortic		3		1		1	1	5	8
Mitral	1	9		8		2		14	24
Hypertrophy of heart		1		1					1
Dilatation of heart		4		3		1			4
Palpitation and irregular action of heart								14	14
Aneurism of arteries	1	2		1		1	1	4	7
Varix		2		2					2
DISEASES OF THE RESPIRATORY SYSTEM	2	77	44	19	5	9	2	315	394
Laryngitis:									
Acute		2	1	1				1	3
Chronic								3	3
Catarrhal								4	4
Ulceration of larynx		1	1					1	2
Bronchitis:									
Acute	1	26	19	5	3			219	264
Chronic		6	3	3				11	17
Catarrhal		7	3	3	1			47	54
Spasmodic asthma		3		2			1	12	15
Passive congestion of lung		1		1					1
Hemorrhage of lung		2		2				3	5
Pneumonia	1	16	10	1		6			17
Pneumonic phthisis, chronic		4				3	1		4
Emphysema								2	2
Pleurisy:									
Acute		8	7	1				7	15
Chronic								5	5
Empyema		1			1				1
DISEASES OF THE DIGESTIVE SYSTEM	4	102	70	22	4	5	5	733	839
Ulcer of the lips								6	6
Stomatitis								1	1
Ulcerative stomatitis								9	9
Caries of dentine and cementum								28	28
Inflammation of dental periosteum								2	2
Abscess of dental periosteum		1	1					3	4
Inflammation of gums and alveoli								3	3
Toothache								8	8
Elongated uvula								1	1
Sore throat		2	2					40	42
Quinsy		5	4	1				4	9
Follicular tonsillitis		3	2	1				6	9
Ulceration of fauces		1		1					1
Inflammation of salivary glands								1	1
Salivation	1		1					1	2
Follicular inflammation of the pharynx								3	3
Inflammation of the stomach		7	4	3				13	20
Dyspepsia		7	3	4				153	160
Gastrodynia								1	1
Inflammation of the intestines:									
Catarrhal	2	2	2	2				12	16
Ulcerative		1	1						1
Abscess in the subperitoneal tissue		1	1						1
Obstruction of the intestines		1	1						1
Hernia		4	2		2			90	94





TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE GULF.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE ORGANS OF LOCOMOTION									
Caries	3	6	5	2			1	11	19
Necrosis		1	1					1	2
Synovitis, acute		1		1				2	3
Ankylosis	1	1	1				1	3	2
Inflammation of muscles	1		1						1
Inflammation of tendons								1	1
Adhesion of tendons		1		1				1	2
Inflamed bursa		1	1					2	3
Thecal abscess		1	1						1
Bunion								1	1
DISEASES OF THE CONNECTIVE TISSUE									
Edema	2	21	21	1			1	27	50
Inflammation		3	3					2	5
Abscess		3	2	1				8	11
	2	15	16				1	17	34
DISEASES OF THE SKIN									
Erythema	6	47	29	22			2	191	244
Urticaria	1			1				2	3
Eczema								9	9
Intertrigo		2		2				28	30
Impetigo								1	1
Ecthyma								1	1
Prurigo								2	2
Lichen								9	9
Psoriasis		1		1					1
Herpes		1	1					2	3
Zona								1	1
Pemphigus								2	2
Acne								1	1
Sycosis								1	1
Chilblain								1	1
Ulcer								24	24
Fissures	5	25	13	16			1	36	66
Boil								5	5
Carbuncle		10	9	1				36	46
Whitlow		2	2					2	4
Onychia		6	4	1			1	20	26
Corn								3	3
Pruritus								2	2
								3	3
PARASITIC DISEASES OF THE SKIN									
Ringworm		6	4	1	1			18	24
Tinea versicolor								5	5
Itch		1	1					2	3
Phthiriasis		4	3	1				9	13
Irritation by stinging plants								1	1
Unclassified								1	1
Poisons	1	4	1	4					
								13	18
Metals and their salts		2		2				7	9
Organic substances		1		1				2	3
Vegetable poisons	1	1	1	1				4	6
POISONED WOUNDS									
Venomous animals		1	1						1
		1	1						1
Injuries	9	174	119	51	1	3	9	312	495
GENERAL INJURIES									
Burns and scalds		15	11	1		1	2	20	35
Heat-stroke		9	8	1				15	24
Multiple injury		5	3			1	1	5	10
		1					1		1

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE GULF.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries.									
LOCAL INJURIES	9	159	108	50	1	2	7	292	460
Strain of muscles		1	1					1	12
Abrasion of skin								3	3
Contusion of scalp								1	1
Scalp wound:									
Bone not exposed		3	1	2				12	15
Bone exposed		1	1					2	3
Contusion of skull		1	1						1
Fracture of the vault of the skull		3		1		1	1		3
Concussion of brain		1	1						1
Contusion of face		1	1					2	3
Wound of face and mouth		2	2					7	9
Fracture of facial bones		1	1						1
Contusion of the eye		1	1					4	5
Foreign body in cornea or conjunctiva								6	6
Wound of the cornea								1	1
Wound of pinna		1	1					1	2
Contusion of soft parts of neck		1	1					1	2
Wound of neck		1		1					1
Foreign body in the pharynx								1	1
Contusion of the chest		6	5	1				18	24
Dislocation of costal cartilages								1	1
Fracture of the ribs		1		1				1	2
Wound of parietes of chest		1	1					3	4
Contusion of back		7	4	3				11	18
Sprain of back		1		1				25	26
Wound of back			1	1				1	2
Fracture of spine	1	1			1	1			2
Contusion of abdomen		1	1					2	3
Wound of parietes of abdomen		2	1	1					2
Foreign body in the intestines								1	1
Contusion of the pelvis		1	1						1
Contusion of the urethra, perineum, scrotum, and penis								1	1
Contusion of testicle		1	1					2	3
Contusion of upper extremities		7	5	2				14	21
Sprain of the shoulder								13	13
Sprain of the elbow		1		1					1
Sprain of the wrist	1	3	3	1				9	13
Sprain of the fingers								2	2
Wound of the upper extremities	1	17	9	9				62	80
Fracture of the clavicle		1	1						1
Fracture of the humerus		3	3					2	5
Fracture of the radius	1	1	2						2
Fracture of the ulna		1		1					1
Fracture of both bones of forearm								1	1
Fracture of carpus, metacarpus, and phalanges		2	1	1				3	5
Dislocation of the clavicle		1		1				1	2
Dislocation of the humerus								1	1
Dislocation of the metacarpus		1		1				2	3
Dislocation of the phalanges of fingers								1	1
Contusion of the lower extremities	3	23	17	9				15	41
Sprain of the hip		1	1					1	2
Sprain of the knee		2	1	1				5	7
Sprain of the ankle		9	6	3				12	21
Sprain of the foot								2	2
Wound of the lower extremities	1	25	18	5			3	27	53
Wound of joint, lower extremities		1					1		1
Fracture of femur	1	1	2						2
Fracture of leg, both bones		8	6	2				1	9
Fracture of fibula alone		7	5	1			1		7
Fracture of phalanges of toes		2		1			1		2
Dislocation of the foot at the ankle		1	1						1



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## THE OHIO.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
TOTAL CASES .....	83	1,412	1,008	340	33	38	76	3,652	5,147
General Diseases .....	39	669	437	199	15	22	35	1,702	2,410
Small-pox .....		1	1						1
Chicken-pox .....		2	1				1		2
Measles .....		12	11				1	1	13
Dengue .....		1	1						1
Influenza .....		37	34	1		1	1	65	102
Mumps .....		6	6					2	8
Cerebro-spinal fever .....		1				1			1
Simple continued fever .....								1	1
Enteric fever .....	5	15	16			3	1	1	21
Typhomalarial fever .....		3	1			1	1		3
Sporadic cholera .....		1	1						3
Dysentery .....	3	18	18	1		1	1	29	50
Malarial intermittent fever .....	3	128	127	1	1		2	291	422
Malarial remittent fever .....		6	5			1		10	16
Malarial cachexia .....		3	2	1				49	52
Phagedæna .....								2	2
Erysipelas, simple .....		4	3				1	1	5
Septicæmia .....	1					1			1
Syphilis:									
Primary .....	1	26	9	17			1	51	78
Secondary .....	10	125	3	115	6		11	504	639
Gonorrhœa .....	1	33	24	6	1		3	194	228
Animal parasites .....		1	1					2	3
Effects of excessive venery .....		1	1						1
Alcoholism .....		24	20	3	1			6	30
Delirium tremens .....		2	2						2
Fissure of soft palate .....		1		1					1
Debility .....		5	5					67	72
Rheumatic fever .....		19	16			1	2	56	75
Rheumatism .....	1	146	125	16	2		4	261	408
Gout .....		1	1						1
Nonmalignant new growth .....		3	2	1				13	16
Malignant new growth .....	1	2		2		1		8	11
Tubercle .....	12	39	1	32	4	9	5	62	113
Scrofula .....	1	1		1		1		4	6
Purpura .....								1	1
Anæmia .....								18	18
Diabetes mellitus .....		2		1		1		1	3
Local Diseases .....	32	550	410	117	15	12	28	1,773	2,355
DISEASES OF THE NERVOUS SYSTEM .....	2	16	10	5	2		1	85	103
Inflammation of brain and its membranes .....		1	1						1
Spinal meningitis .....		1		1					1
Myelitis .....								1	1
Neuritis .....								3	3
Softening of brain or cord .....		1			1				1
Locomotor ataxy .....		1			1			3	4
Apoplexy .....		1		1				1	2
Hemiplegia .....	1						1		1
Local paralysis .....	1			1				3	4
Spasm of muscle .....								1	1
Paralysis agitans .....								6	6
Neuralgia .....		6	5	1				22	28
Facial .....		2	2					15	17
Sciatica .....		1	1					4	5
Vertigo .....		1	1					6	3
Mégrim .....								16	17
Epilepsy .....								2	6
Hysteria .....		1		1				2	2

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE OHIO.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
MENTAL DISEASES.....		1			1			1	2
Hypochondriasis.....								1	1
Mania.....		1			1				1
DISEASES OF THE EYE.....	1	8	6	2			1	30	32
Conjunctivitis.....	1	4	4				1	23	22
Pterygium.....								2	1
Keratitis.....								2	1
Opacity of cornea.....								1	3
Iritis.....		2	1	1				1	9
Glaucoma.....		1		1					8
Retinitis.....								1	1
Abscess of eyelid.....		1	1						1
DISEASES OF THE EAR.....	1	6	4	2	1			21	28
Inflammation of the external meatus, acute.....								4	4
Abscess of the external meatus.....								1	1
Accumulation of wax.....								3	3
Inflammation of the middle ear.....	1	6	4	2	1			6	13
Ulceration of membrana tympani.....								1	1
Obstruction of Eustachian tube.....								5	5
Ankylosis of ossicles, ear.....								1	1
DISEASES OF THE NOSE.....								32	32
Hypertrophy.....								5	5
Epistaxis.....								1	1
Nasal catarrh.....								23	23
Ozena.....								3	3
DISEASES OF THE CIRCULATORY SYSTEM.....	2	13		9		4	2	57	72
Valvular disease:									
Aortic.....		2		1		1		4	6
Mitral.....	2	8		6		3	1	24	34
Hypertrophy of heart.....								4	4
Palpitation and irregular action of heart.....								15	15
Aneurism of arteries.....		1					1	8	9
Phlebitis.....								1	1
Varix.....		2		2				1	3
DISEASES OF THE RESPIRATORY SYSTEM.....	6	115	79	26	8	5	3	352	473
Edema glottidis.....		1				1			1
Laryngitis:									
Acute.....								1	1
Catarrhal.....								6	6
Aphonia.....								9	9
Bronchitis:									
Acute.....		46	39	4	2		1	187	232
Chronic.....	1	6	2	3	2			45	53
Catarrhal.....	1	15	7	8	1			73	89
Spasmodic asthma.....	1	5	3	3				4	10
Hemorrhage of lung.....		3	2	1					3
Pneumonia.....	3	22	17	4	2	2		3	28
Pneumonic phthisis:									
Acute.....		2			1		1	1	3
Chronic.....		2		1		1		6	8
Pleurisy:									
Acute.....		9	8			1		7	16
Chronic.....		3	1	1			1	10	13
Empyema.....		1		1					1





TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE OHIO.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE GENERATIVE SYSTEM:	9	136	108	34			3	281	426
Urethritis								18	18
Gleet								18	18
Stricture of uretha, organic		15	9	6				31	46
Urinary fistula		1		1				6	7
Hypertrophy of prostate gland								6	6
Acute inflammation of prostate gland		1	1					1	2
Chronic inflammation of prostate gland								1	1
Inflammation of glans penis								5	5
Ulcer of penis	6	88	72	21			1	128	222
Phimosis		4	4					1	5
Paraphimosis		1	1						1
Abscess of the scrotum		1	1					1	2
Pruritis of the scrotum								1	1
Varicocele								10	10
Hydrocele of tunica vaginalis		1	1					11	12
Orchitis:									
Acute		13	11	1			1	6	19
Chronic		2	1	1				3	5
Epididymitis	1	6	5	1			1	10	17
Spermatorrhea	1	1		2				2	4
Impotence								12	12
Pelvic cellulitis								2	2
Hypertrophy of the uterus								2	2
Inflammation of the uterus	1		1						1
Displacement and distortions of the uterus		1		1					1
Abscess of the vulva								1	1
Monorrhagia								4	4
Metrorrhagia		1	1					1	2
DISEASES OF THE ORGANS OF LOCOMOTION	1	8	5	2		1	1	13	22
Periostitis		4	3	1				1	5
Chronic abscess of bones	1					1			1
Caries		1					1	1	2
Necrosis		2	1	1				6	8
Synovitis, acute		1	1						1
Inflammation of muscles								1	1
Talipes valgus								1	1
Flat-foot								2	2
Ganglion								1	1
DISEASES OF THE CONNECTIVE TISSUE		27	23	2	1		1	44	71
Edema		2	2					7	9
Inflammation		9	9					7	16
Abscess		16	12	2	1		1	30	46
DISEASES OF THE SKIN	1	42	33	6	1		3	143	186
Erythema		1	1					3	4
Urticaria								8	8
Eczema		3	2	1				33	36
Impetigo								1	1
Pityriasis								2	2
Miliaria								1	1
Herpes								9	9
Zona								2	2
Acne								2	2
Sycosis								7	7
Frostbite		1	1						1
Ulcer		22	14	4	1		3	47	69
Boil		5	5					16	21
Carbuncle	1	1	2					3	5



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE OHIO.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE SKIN—Continued.									
Whitlow .....		5	5					5	10
Onychia .....		2	1	1				1	3
Corn .....		1	1						1
Wen .....		1	1						1
Pruritus .....								2	2
Hyperidrosis .....								1	1
PARASITIC DISEASES OF THE SKIN .....									
Ringworm .....		2	2					20	22
Itch .....		2	2					2	2
Phthiriasis .....								17	19
								1	1
Poisons .....									
								3	3
Metals and their salts .....								1	1
Vegetable poisons .....								2	2
POISONED WOUNDS .....									
Venomous animals .....								1	1
								1	1
Injuries .....	12	193	161	24	3	4	13	173	378
GENERAL INJURIES .....									
Burns and scalds .....	3	15	13	3	1	1		17	35
Effects of cold .....		10	6	2	1	1		16	26
Heat stroke .....		3	3					1	4
	3	2	4	1					5
LOCAL INJURIES .....									
Contusion of nerves .....	9	178	148	21	2	3	13	156	343
Strain of muscles .....								2	2
Abrasion of skin .....		1	1					5	6
Contusion of scalp .....								1	1
Scalp wound:								1	2
Bone not exposed .....		5	4	1				4	9
Bone exposed .....	1	6	5	1		1		4	11
Fracture of the vault of the skull .....								1	1
Concussion of brain .....		1	1						1
Compression of brain .....		2		1		1			2
Contusion of face .....		3	3					2	5
Wound of face and mouth .....		8	6	1			1	12	20
Fracture of facial bones .....		1					1		1
Contusion of the eye .....		3	2	1					3
Foreign body in cornea or conjunctiva .....								9	9
Wound of pinna .....								1	1
Foreign body in the pharynx .....								1	1
Contusion of the chest .....		2	1				1	7	9
Fracture of the ribs .....		2	2					6	8
Wound of parietes of chest .....		1					1	1	2
Perforating wound of chest .....		1				1			1
Contusion of back .....		2	2					1	3
Sprain of back .....	1	4	5					10	15
Wound of back .....								1	1
Contusion of abdomen .....		2	1	1					2
Wound of parietes of abdomen .....		2	2						2
Contusion of the pelvis .....		1	1						1
Wound of the urethra, perineum, scrotum, and penis .....		1		1					1
Contusion of testicle .....								1	1
Contusion of upper extremities .....	1	5	6					11	17
Sprain of the shoulder .....		3	3					2	5
Sprain of the elbow .....								2	2
Sprain of the wrist .....		4	2	2				3	7
Sprain of the fingers .....								1	1
Wound of the upper extremities .....		29	20	6			3	31	60

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE OHIO.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries.									
LOCAL INJURIES—Continued.									
Separation of epiphyses		1	1						1
Fracture of the clavicle		2	1	1					2
Fracture of the radius		3	2	1				1	4
Fracture of the carpus, metacarpus, and phalanges		3	1		2			1	4
Dislocation of the humerus		1	1						1
Contusion of the lower extremities		29	24	2			3	14	43
Sprain of the knee		5	4	1				3	8
Sprain of the ankle	1	21	21				1	10	32
Sprain of the foot		1	1						1
Wound of the lower extremities	3	14	16	1				6	23
Fracture of femur	2		1				1		2
Fracture of leg, both bones		5	4				1		5
Fracture of tibia alone		1	1						1
Fracture of fibula alone		2	2						2
Fracture of metatarsus								1	1

THE MISSISSIPPI.									
TOTAL CASES	69	1,375	852	430	33	53	76	2,806	4,250
General Diseases	31	645	402	211	15	24	24	1,431	2,107
Smallpox								1	1
Cowpox								19	19
Measles		3	3						3
Influenza		26	20	5			1	44	70
Mumps								2	2
Diphtheria		1	1						1
Simple continued fever		1	1						1
Enteric fever		13	6			4	3		13
Sporadic cholera		1	1					1	2
Dysentery	1	43	32	5	2	5		44	88
Malarial intermittent fever	11	150	142	16	1	1	1	331	492
Malarial remittent fever		37	33	2		1	1	10	47
Malarial cachexia	3	15	12	5			1	78	96
Phagedæna		1	1						1
Erysipelas—Simple		4	4					3	7
Pyæmia		1	1						1
Syphilis:									
Primary		20	3	12	3		2	25	45
Secondary	6	108	9	96	4		5	253	367
Gonorrhœa	2	39	22	17			2	257	298
Animal parasites		2	2					3	5
Alcoholism		18	13	4		1		10	28
Delirium tremens	1	2	2		1				3
Fissure of soft palate		1	1						1
Debility	1	3	4					29	33
Rheumatic fever	1	19	16	3			1	5	25
Rheumatism	1	87	69	15	1	1	2	257	345
Nonmalignant new growth		4	2	1	1			5	9
Malignant new growth		3	1	1	1			5	8
Tubercle	4	41	1	27	1	11	5	48	93
Scrofula		1		1					1
Leprosy		1		1					1
Anæmia								1	1
Local Diseases	30	534	303	184	14	24	39	1,216	1,780
DISEASES OF THE NERVOUS SYSTEM	5	20	9	7	2	2	5	75	100
Hemorrhage, cerebral		2		1			1	3	5
Hemorrhage into corpora quadrigemina		1			1				1
Spinal meningitis		2		2				3	5



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## THE MISSISSIPPI.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE NERVOUS SYSTEM—Continued.									
Myelitis.....		1					1		1
Neuritis.....		1		1				2	3
Locomotor ataxy.....		1					1	8	9
Apoplexy.....	1						1		1
Paralysis.....	1					1			1
Hemiplegia.....	1	1		1		1			2
Paraplegia.....	2		1				1		2
Local paralysis.....		2	2						2
Wryneck.....		1	1						1
Neuralgia.....		3	2	1				24	27
Facial.....		1	1					21	22
Sciatica.....		2	1	1				5	7
Vertigo.....								2	2
Megrim.....								7	7
Tetanus.....		1	1						1
Epilepsy.....		1			1				1
DISEASES OF THE EYE.....	1	14	8	3	1		3	27	42
Conjunctivitis.....		2	1				1	13	15
Keratitis.....		1		1				4	1
Ulcer of cornea.....		1	1					1	2
Opacity of cornea.....								1	1
Iritis.....	1	5	6					2	8
Synechia.....								3	3
Glaucoma.....								1	1
Inflammation of optic nerve.....		1			1			1	1
Retinitis.....		2		1			1	1	3
Cataract.....								1	1
Ametropia.....								3	3
Dacryocystitis.....		1					1		1
Stye.....								1	1
Entropion.....		1		1					1
DISEASES OF THE EAR.....		4	1	3				11	15
Inflammation of the external meatus—									
Acute.....		1		1				1	2
Chronic.....								1	1
Abscess of the external meatus.....								1	1
Inflammation of the middle ear.....		3	1	2				6	9
Obstruction of Eustachian tube.....								2	2
DISEASES OF THE NOSE.....								16	16
Inflammation.....								1	1
Nasal catarrh.....								15	15
DISEASES OF THE CIRCULATORY SYSTEM.....	1	30	4	18	1	5	3	26	57
Endocarditis.....		1	1					1	2
Valvular disease:									
Aortic.....		2		2				2	4
Mitral.....		13		10		2	1	16	29
Hypertrophy of heart.....	1				1				1
Angina pectoris.....		1		1					1
Palpitation and irregular action of heart.....		2		1			1	5	7
Aneurism of arteries.....		8	2	3		3			8
Obstruction of arteries.....		1	1					2	3
Varix.....		2		1			1		2
DISEASES OF THE RESPIRATORY SYSTEM.....	2	100	64	28	2	7	1	202	304
Laryngitis—Acute.....								4	

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE MISSISSIPPI.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE RESPIRATORY SYSTEM—Continued.									
Bronchitis:									
Acute .....		33	24	5	2	2		112	145
Chronic .....	1	19	8	11			1	17	37
Catarrhal .....		7	4	3				54	61
Spasmodic asthma .....								6	6
Pneumonia .....	1	27	20	4		4		1	29
Pneumonic phthisis:									
Acute .....		2		1		1			2
Chronic .....								1	1
Emphysema .....		3		3					3
Pleurisy:									
Acute .....		8	7					5	13
Chronic .....		1	1	1				2	3
DISEASES OF THE DIGESTIVE SYSTEM									
Stomatitis .....	3	106	80	15	2	5	7	404	513
Caries of dentine and cementum .....								3	3
Necrosis of dentine and cementum .....								7	7
Abscess of dental periosteum .....								4	4
Elongated uvula .....								1	1
Sore throat .....								2	2
Quinsy .....		2	1					12	12
Follicular tonsillitis .....		2	2				1	6	8
Ulceration of fauces .....								6	8
Salivation .....								1	1
Follicular inflammation of the pharynx .....	1	2	2	1				1	1
Inflammation of the stomach .....		11	8					12	15
Ulceration of the stomach .....							3	22	33
Dyspepsia .....		7	4	2				2	2
Gastrodynia .....	1		1				1	46	53
Pyrosis .....									
Inflammation of the intestines:								1	1
Catarrhal .....		21	18	1		2		55	76
Ulcerative .....		10	7	3				6	16
Obstruction of the intestines .....		1	1						1
Hernia .....		3	2	1				62	65
Diarrhea .....	1	17	16	1			1	50	68
Constipation .....		2	2					46	48
Colic .....		4	4					9	13
Ulceration of the rectum .....		3	1	2				3	6
Piles:									
Internal .....		4	2	2				10	14
External .....		5	4	1				12	17
Stricture of the rectum .....		1					1		1
Fistula in ano .....		3	2	1				4	7
Pruritus ani .....								1	1
Congestion of the liver .....								2	2
Hepatitis .....		2	1		1			2	4
Cirrhosis of liver .....		1			1				1
Abscess of liver .....		2				2			2
Jaundice .....								3	3
Inflammation of hepatic ducts and gall bladder .....									
Gallstones .....		1	1					13	13
Peritonitis .....		2	1			1			2
DISEASES OF THE LYMPHATIC SYSTEM									
Hypertrophy of the spleen .....	2	27	15	11			3	40	69
Induration and enlargement of spleen from ague .....		1		1					1
Hypertrophy of lymph glands .....		1		1					1
		2		1			1	1	



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE MISSISSIPPI.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE LYMPHATIC SYSTEM—Continued.									
Inflammation of lymph glands		7	6	1				22	29
Suppuration of lymph glands	2	16	9	7			2	17	35
DISEASES OF THE URINARY SYSTEM									
Acute nephritis	3	20	2	14		5	2	18	41
Bright's disease	3	6	1	5				2	8
Bright's disease	3	9		5		5	2	2	14
Diabetes insipidus		1		1					1
Inflammation of the bladder:									
Acute		4	1	3				6	10
Subacute								1	1
Chronic								2	2
Suppurative								2	2
Incontinence of urine								3	3
DISEASES OF THE GENERATIVE SYSTEM									
Urethritis	4	106	56	42	5		7	202	312
Gleet								4	4
Ulcer of the urethra		1	1					4	4
Stricture of the urethra, organic		13	4	6	1		2	19	32
Hypertrophy of prostate gland								1	
Acute inflammation of prostate gland		1		1					1
Inflammation of glans penis		1	1					7	8
Ulcer of penis	4	70	38	32	2		2	136	210
Phimosis		1	1					3	4
Paraphimosis		1	1					1	2
Abscess of the scrotum		1					1		1
Varicocele		2		1	1			2	4
Hydrocele of tunica vaginalis		1	1					3	4
Orchitis:									
Acute		5	4	1				9	14
Chronic		3		1	1		1	3	6
Epididymitis		4	4					7	11
Abscess of testicle		1	1						1
Hernia testis								2	2
Impotence								1	1
Inflammation of the uterus		1					1		1
DISEASES OF THE ORGANS OF LOCOMOTION									
Periostitis	4	22	14	8			4	23	49
Caries		3	3					5	8
Necrosis		5		3			2	2	7
Synovitis:	1	7	6	2				6	14
Acute	1	2	1	2				2	5
Chronic								2	2
Ankylosis								3	3
Loose body in joint								1	1
Relaxation of ligaments								1	1
Psoas, lumbar, and other abscesses	1		1						1
Angular curvature of spine	1	1		1			1		2
Cyst of muscles	1	1							1
Contraction of tendons and fasciæ		1	1						1
Talipes valgus								1	1
Bursal abscess		2	1				1		2
DISEASES OF THE CONNECTIVE TISSUE									
Edema		19	12	6	1			16	35
Inflammation		1	1					1	2
Abscess		3	2	1				3	6
		15	9	5	1			12	27
DISEASES OF THE SKIN									
Erythema	5	63	36	28			4	133	201
Urticaria								2	2
								4	

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE MISSISSIPPI.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries.									
DISEASES OF THE SKIN—Continued.									
Eczema		3	1	2				29	32
Intertrigo								1	1
Pityriasis		2	1				1		2
Lichen		1	1					2	3
Psoriasis								3	3
Herpes								7	7
Acne								7	7
Sycosis								2	2
Frostbite		4	2	2					4
Ulcer	4	29	14	17			2	43	76
Fissures								1	1
Boil		11	7	4				13	24
Carbuncle	1	2	3					2	5
Gangrene								1	1
Whitlow		10	6	3			1	11	21
Corn								1	1
Lupus								1	1
Wen		1	1					3	4
PARASITIC DISEASES OF THE SKIN		3	2	1				23	26
Ringworm								8	8
Tinea versicolor		1		1					1
Itch		1	1					14	15
Phthiriasis								1	1
Irritation by stinging plants		1	1						1
Poisons		2	1	1				4	6
Metals and their salts								2	2
Vegetable poisons		2	1	1				2	4
Injuries	8	193	145	34	4	5	13	155	356
GENERAL INJURIES	1	5	3	1		2		11	17
Burns and scalds	1	4	2	1		2		10	15
Heat stroke		1	1						1
Multiple injury								1	1
LOCAL INJURIES	7	188	142	33	4	3	13	144	339
Contusion of nerves		1			1				1
Wound of veins								1	1
Strain of muscles		2	2					3	5
Abrasion of skin								4	4
Foreign body in subcutaneous tissue		1	1					1	2
Scalp-wound:									
Bone not exposed		10	7	2			1	10	20
Bone exposed	1	4	4	1				4	9
Fracture of the vault of the skull		4	1			2	1	1	5
Concussion of brain		2	1	1					2
Contusion of brain		1	1						1
Contusion of face	1	1	2						2
Wound of face and mouth		6	5	1				5	11
Foreign body in cornea or conjunctiva		1	1					4	5
Wound of eyelid		1	1						1
Wound of the cornea		1	1						1
Wound of pinna		1	1						1
Wound of neck		1	1					1	2
Contusion of the chest		5	4	1				6	11
Dislocation of costal cartilages		1	1						1
Fracture of the ribs		3	2	1					3
Wound of parietes of chest		6	3	2			1	1	7
Penetrating wound of pleura or lung		2	2						2
Contusion of back		2	2					2	4
Sprain of back		9	5	3			1	11	20



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## THE MISSISSIPPI.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
<b>Injuries.</b>									
<b>LOCAL INJURIES—Continued.</b>									
Wound of back		1	1					1	2
Contusion of abdomen		2	2						2
Wound of parietes of abdomen		1	1					1	2
Contusion of upper extremities	1	8	6	2	1			11	20
Sprain of the shoulder		2	2					1	3
Sprain of the wrist								2	2
Sprain of the fingers								1	1
Wound of the upper extremities		20	13	5		2		39	59
Fracture of the clavicle		2	2						2
Fracture of the humerus		2	2						2
Fracture of the radius	1	2	3					1	4
Fracture of the ulna		4	3	1				1	5
Fracture of both bones of forearm		2	2						2
Fracture of carpus, metacarpus, and phalanges		1	1					5	6
Dislocation of the clavicle		1				1			1
Dislocation of the humerus								2	2
Dislocation of the phalanges of fingers		1	1						1
Contusion of the lower extremities	1	23	19	4		1		13	37
Sprain of the knee								3	3
Sprain of the ankle		7	4	1		2		2	9
Sprain of the foot		1	1						1
Wound of the lower extremities		30	22	6	1	1		5	35
Fracture of femur		2	2						2
Fracture of cervix femoris		1					1		1
Fracture of leg, both bones		3	1				2		3
Fracture of tibia alone	1		1						1
Fracture of fibula alone		4	3	1				1	5
Fracture of metatarsus	1	1	1	1					2
Dislocation of the foot at the ankle								1	1
Dislocation of the astragalus		2	1		1				2
<b>AMPUTATIONS</b>		1	1						1
Amputation of fingers		1	1						1

## GREAT LAKES.

<b>TOTAL CASES.</b>	<b>182</b>	<b>2,512</b>	<b>1,704</b>	<b>708</b>	<b>54</b>	<b>66</b>	<b>162</b>	<b>9,444</b>	<b>12,138</b>
<b>General Diseases</b>	<b>73</b>	<b>1,105</b>	<b>705</b>	<b>340</b>	<b>24</b>	<b>36</b>	<b>73</b>	<b>4,129</b>	<b>5,307</b>
Small-pox								1	1
Measles		6	6						6
Epidemic rose rash								1	1
Influenza		95	78	9	2	3	3	250	345
Mumps		3	3					5	8
Diphtheria		2	2					2	4
Simple continued fever	1	14	12	1			2	13	28
Enteric fever	8	119	101	6	1	8	11	11	138
Typho-malarial fever	1	2	3						3
Sporadic cholera								2	2
Epidemic diarrhœa								9	9
Dysentery		9	8				1	17	26
Malarial intermittent fever	10	84	79	12			3	223	317
Malarial remittent fever	1	4	5					4	9
Malarial cachexia	2	5	6	1				26	33
Phagedæna								1	1
Erysipelas, simple		12	12					10	22
Septicæmia		1	1					1	2

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## GREAT LAKES.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases.									
Syphilis:									
Primary		8	3	5				144	152
Secondary	7	161	31	124	3	3	7	1,068	1,236
Gonorrhœa	6	76	45	34	1		2	1,134	1,216
Animal parasites		3	3					8	11
Effects of mechanical injuries								1	1
Effects of excessive venery								3	3
Scurvy								1	1
Alcoholism	1	69	61	6		1	2	76	146
Delirium tremens	1	8	7	2					9
Tongue-tie		1		1					1
Debility	1	10	5	6				165	176
Old age		1					1		1
Deformity of penis								1	1
Retained testicle in inguinal canal								1	1
Rheumatic fever	2	50	38	7			7	14	66
Rheumatism	14	243	178	54	6	2	17	700	957
Gout		4	4					2	6
Osteo-arthritis		4	3				1		4
Nonmalignant new growth		11	8	2			1	43	54
Malignant new growth		1	1					6	7
Tubercle	18	95		68	11	19	15	166	279
Scrofula		1		1				3	4
Purpura		2	2					2	4
Anæmia		1		1				11	12
Diabetes mellitus								4	4
Local Diseases	67	929	605	279	28	25	59	4609	5605
DISEASES OF THE NERVOUS SYSTEM	11	73	41	24	8	3	8	302	386
Congestion of brain		2		1		1		1	3
Hemorrhage of spinal cord		1				1			1
Neuritis		5	3	1			1	7	12
Softening of brain or cord		1			1				1
Sclerosis		1					1		1
Locomotor ataxy	4	1			1		4	1	6
Apoplexy								1	1
Paralysis								5	5
Hemiplegia	4		1	1	1		1	2	6
Paraplegia		2		2					2
Local paralysis		4	1	3				10	14
Paralysis, acute, ascending		1				1		4	5
Spasm of muscle								2	2
Wry-neck								1	1
Paralysis agitans								1	1
Hyperæsthesia		1	1						1
Neuralgia		22	17	3	2			156	178
Facial		3	2	1				35	38
Sciatica	2	14	10	5	1			32	48
Vertigo		3	1	2				8	11
Megrin		1	1					20	21
Epilepsy		10	3	4	2		1	15	25
Chorea	1			1					1
Hysteria								1	1
Catalepsy		1	1						1
MENTAL DISEASES	1	2	3					14	17
Hypochondriasis		1	1					12	13
Melancholia		1	1					2	3
Epileptic insanity	1		1						1
DISEASES OF THE EYE	1	27	15	7	4		2	114	142
Conjunctivitis		11	6	4			1	67	78
Pterygium		1	1					1	2
Keratitis		1	1					2	3



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## GREAT LAKES.

DISEASES.	NUMBER OF CASES.							
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.
			Recovered.	Improved.	Not improved.			
<b>Local Diseases.</b>								
<b>DISEASES OF THE EYE—Continued.</b>								
Ulcer of cornea		1					1	2
Opacity of cornea								1
Iritis		3		2	1			4
Atrophy of optic disc or papilla								1
Neuro-retinitis		1			1			1
Detachment of retina								3
Retinitis								12
Cataract		1			1			1
Dislocation of lens	1	1	1	1				2
Ametropia								2
Amaurosis		1			1			1
Neuralgia of eyeball								1
Squint		1	1					1
Abscess of lachrymal gland		3	3					3
Stricture of nasal duct								2
Hæmatoma								1
Blepharitis								2
Stye								7
Abscess of eyelid								1
Chalazion		2	2					4
<b>DISEASES OF THE EAR.</b>		15	7	8				52
Inflammation of the external meatus:								
Acute		2	2					6
Chronic		1	1					1
Abscess of the external meatus								3
Accumulation of wax		1	1					20
Inflammation of the middle ear		9	3	6				20
Perforation of membrana tympani		2		2				2
Deafness								3
<b>DISEASES OF THE NOSE.</b>		3	3					173
Hypertrophy								1
Epistaxis		1	1					5
Inflammation								2
Nasal catarrh		2	2					160
Abscess								1
Ozæna								4
<b>DISEASES OF THE CIRCULATORY SYSTEM.</b>	1	27	7	16	1	2	2	68
Pericarditis		1	1					1
Endocarditis								2
Valvular disease:								
Aortic		5		3	1	1		8
Mitral		7		6		1		32
Tricuspid								1
Hypertrophy of heart								1
Angina pectoris								1
Syncope								1
Palpitation and irregular action of heart		4	3	1				13
Aneurism of arteries	1	2		2		1		3
Obstruction of arteries		1		1				1
Phlebitis		4	2	1			1	2
Varix		3	1	2				7
<b>DISEASES OF THE RESPIRATORY SYSTEM.</b>	12	188	131	47	3	10	9	1,033
Hay-asthma		4	3	1				3
Laryngitis:								
Acute		3	1	1			1	22
Chronic		1		1				1
Catarrhal								1
Ulceration of larynx								1
Fistula of trachea		1		1				1

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

GREAT LAKES.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE RESPIRATORY SYSTEM—Continued.									
Bronchitis:									
Acute		91	69	17	2	1	2	859	950
Chronic		18	6	9		2	1	79	97
Catarrhal		3	2			1		4	7
Spasmodic asthma		6		5		1		16	22
Passive congestion of lung	1	1	2					1	3
Hemorrhage of lung		4	2	1			1	2	6
Pneumonia	3	26	26	1		2		1	30
Abscess of lung	2				1	1			2
Gangrene of lung		1					1		1
Cirrhosis of lung		2		1			1		2
Pneumonia phthisis:									
Acute		1		1				1	2
Chronic	3			2		1		12	15
Emphysema								1	1
Hydrothorax	1		1						1
Pleurisy:									
Acute	1	22	16	6			1	16	39
Chronic	1	2	3					13	16
Empyema		2				1	1		2
DISEASES OF THE DIGESTIVE SYSTEM	6	148	110	31	4	2	7	1,319	1,473
Ulcer of the lips								1	1
Stomatitis								6	6
Ulcerative stomatitis								7	7
Vesicular stomatitis								1	1
Cyst of the mouth								1	1
Ulceration of the dental pulp								2	2
Caries of dentine and cementum								6	6
Abscess of dental periosteum								7	7
Inflammation of gums and alveoli								4	4
Ulceration of gums and alveoli								2	2
Caries of the alveoli								1	1
Toothache								7	7
Inflammation of the tongue		1	1					1	2
Ulcer of the tongue								4	4
Loss of sense of taste								1	1
Hypertrophy of tonsils								4	4
Elongated uvula								3	3
Sore throat		3	2		1			140	143
Quinsy		7	7					14	21
Follicular tonsillitis		7	6	1				34	41
Ulceration of fauces								2	2
Salivation								4	4
Follicular inflammation of the pharynx		4	2	2				34	38
Post pharyngeal abscess								3	3
Inflammation of the stomach	2	9	8	2			1	19	30
Ulceration of the stomach		1		1				1	2
Dilatation of the stomach								1	1
Dyspepsia		9	4	4	1			266	275
Gastrodynia		1					1	6	7
Vomiting								6	6
Inflammation of the intestines:									
Catarrhal		12	10	2				34	46
Ulcerative		7	5	1		1		1	8
Ulcer of the intestines								1	1
Abscess in the subperitoneal tissue		1					1		1
Obstruction of the intestines								1	1
Hernia	1	7		7	1			117	125
Diarrhea		40	34	5			1	222	262
Constipation		5	5					208	213
Colic	1	1	2					10	12
Abscess of the rectum		1	1					2	3





TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

## GREAT LAKES.

[illegible]



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

GREAT LAKES.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE SKIN—Continued.									
Ecthyma.....								4	4
Pityriasis.....								4	4
Prurigo.....								1	1
Lichen.....								5	5
Psoriasis.....	1	2		3				23	26
Miliaria.....		1	1						1
Herpes.....								18	18
Zona.....		1	1					4	5
Acne.....								30	30
Sycosis.....								11	11
Scleroderma.....								3	3
Frostbite.....		2	1	1				2	4
Ulcer.....	4	46	25	18	1		6	127	177
Fissures.....								2	2
Boil.....	1	5	6					56	62
Carbuncle.....	1	2	3					8	11
Whitlow.....		13	11	1			1	23	36
Onychia.....								4	4
Lupus.....		1	1					2	3
Wen.....		1	1					6	7
Pruritus.....								5	5
Hyperidrosis.....								2	2
PARASITIC DISEASES OF THE SKIN.....									
Ringworm.....		2	1	1				65	67
Itch.....		2	1	1				20	22
Phthiriasis.....								37	37
Unclassified.....								5	5
								3	3
Poisons.....	1	4	5					8	13
Metals and their salts.....		1	1					4	5
Caustic alkalies.....		1	1						1
Organic substances.....	1		1					1	2
Vegetable poisons.....		1	1					3	4
Animal poisons.....		1	1						1
Injuries.....	39	474	387	89	2	5	30	697	1,210
GENERAL INJURIES.....									
Burns and scalds.....	3	40	37	4	1		1	73	116
Effects of cold.....	1	12	12	1				32	45
Heat stroke.....		2	2					35	37
Multiple injury.....	1	3	4					1	5
Exhaustion.....	1	22	18	3	1		1	5	28
		1	1						1
LOCAL INJURIES.....									
Compression of nerves.....	36	434	350	85	1	5	29	624	1,094
Strain of muscles.....								1	1
Rupture of muscles.....	1	1	1	1				15	17
Wound of tendon.....	1		1						1
Abrasion of skin.....								1	1
Foreign body in subcutaneous tissue.....								2	2
Contusion of scalp.....								12	12
Scalp wound:								2	2
Bone not exposed.....		10	8	1			1	19	29
Bone exposed.....		12	12					1	13
Fracture of the vault of the skull.....	1	4	3			2			5
Concussion of brain.....	1	5	6					3	9
Contusion of face.....		7	7					5	12
Wound of face and mouth.....	1	19	16	4				25	45
Fracture of facial bones.....		4	2	2				1	5
Dislocation of the lower jaw.....		1	1						1
Contusion of the eye.....		1	1						1
Foreign body in cornea or conjunctiva.....		1	1					9	10

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

GREAT LAKES.								
DISEASES.	NUMBER OF CASES.							
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.
			Recovered.	Improved.	Not improved.			
Injuries.								
LOCAL INJURIES—Continued.								
Foreign body in cavity of eye								1
Wound of conjunctiva								1
Wound of pinna								1
Wound of membrana tympani								1
Foreign body in external meatus								1
Contusion of the chest	1	23	17	5			2	21
Dislocation of costal cartilages	1		1					
Fracture of the ribs		13	7	5			1	9
Wound of parietes of chest		4		4				8
Contusion of back	1	10	10	1				15
Sprain of back		21	17	3			1	36
Wound of back		4	3	1				
Wound of spine								1
Fracture of spine		1				1		
Contusion of abdomen		5	5					4
Wound of parietes of abdomen		1	1					
Wound of the urethra, perineum, scrotum, and penis								2
Foreign body in the rectum								1
Contusion of testicle								6
Contusion of upper extremities	1	20	15	6				55
Sprain of the shoulder		1	1					13
Sprain of the elbow		4	4					2
Sprain of the wrist		6	5	1				30
Sprain of the fingers								6
Wound of the upper extremities	3	44	40	4		1	2	117
Fracture of the clavicle	1	3	4					1
Fracture of the scapula		2	2					3
Fracture of the humerus	1	1	2					2
Fracture of the radius	1	4	4				1	2
Fracture of the ulna		5	2	2			1	3
Fracture of both bones of forearm	1	6	3	2			2	4
Fracture of carpus, metacarpus, and phalanges	1	4	4	1				6
Dislocation of the clavicle	1	1	1	1				1
Dislocation of the humerus		11	9	1			1	1
Dislocation of the radius and ulna		1	1					
Dislocation of the phalanges of thumb		1	1					1
Contusion of the lower extremities	2	62	44	12		1	7	62
Sprain of the hip		1					1	3
Sprain of the knee		5	3	2				6
Sprain of the ankle	2	41	35	6	1		1	38
Sprain of the foot		1		1				7
Wound of the lower extremities	1	28	22	4			3	44
Fracture of femur	2	5	5	1			1	
Fracture of cervix femoris		2	1				1	1
Fracture of patella								2
Fracture of leg, both bones	5	9	7	6			1	3
Fracture of tibia alone	3	8	5	6				1
Fracture of fibula alone	1	3	3				1	1
Fracture of metatarsus		1	1					1
Fracture of phalanges of toes	1	3	4					
Dislocation of the femur at the hip		1		1				
Dislocation of the knee	1		1					1
Dislocation of the foot at the ankle		2	1	1				3
Dislocation of the astragalus		1					1	
AMPUTATIONS	2		2					1
Amputation of fingers								1
Amputation of leg	1		1					
Amputation of foot	1		1					



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
TOTAL CASES.....	123	1,705	895	659	51	82	141	2,885	4,713
General Diseases.....	45	671	347	264	15	38	52	1,174	1,809
Chicken pox.....		1	1						1
Measles.....		4	4					2	6
Influenza.....		45	32	10	2	1		64	109
Simple continued fever.....		13	13						13
Enteric fever.....	3	82	70	7		6	2	1	86
Typhomalarial fever.....		6	5	1					6
Sporadic cholera.....		1	1						1
Dysentery.....		12	6	4			2	3	15
Malarial intermittent fever.....	4	51	39	11	2	2	1	97	152
Malarial remittent fever.....	1	24	18	5			2	2	27
Malarial cachexia.....	1	5	2	4				6	12
Erysipelas:									
Simple.....		11	11					1	12
Phlegmonous.....	1		1						1
Syphilis:									
Primary.....		17	5	12				23	40
Secondary.....	8	92	2	83	4		8	206	306
Gonorrhea.....	2	45	16	26	1		4	403	450
Animal parasites.....		3	3					2	5
Scurvy.....		11	6	5				3	14
Alcoholism.....		23	20	2		1		11	34
Delirium tremens.....		2	2						2
Cleft palate.....		1		1					1
Debility.....	1	7	2	3			3	17	25
Rheumatic fever.....	3	28	21	8			2	3	34
Rheumatism.....	6	96	62	32	1	2	5	251	353
Osteo-arthritis.....	1	5	3	3		1	2		6
Nonmalignant new growth.....	1	5	3	3				7	13
Malignant new growth.....		4	3	3		1		2	6
Tubercle.....	12	68	1	34	5	23	17	60	140
Scrofula.....	1	6		3		1	3		7
Purpura.....		2		1			1	1	3
Anemia.....		1	1					9	10
Local Diseases.....	58	733	356	308	25	38	64	1,312	2,103
DISEASES OF THE NERVOUS SYSTEM.....	8	56	16	27	6	4	11	121	185
Congestion of brain.....		2	2						2
Hemorrhage of spinal cord.....		1					1		1
Inflammation:									
Of membranes of brain and spinal cord.....		1				1			1
Of cerebral membranes.....		1				1			1
Neuritis.....		1					1	7	8
Spastic spinal paralysis.....		1		1					1
Locomotor ataxy.....	1	6		4		1	2		7
Hemiplegia.....	3	4		2		1	4		7
Paraplegia.....		1			1				1
Local paralysis.....	1	1		1			1	1	3
Spasm of muscle.....								3	3
Aphasia.....		1		1					1
Neuralgia.....		16	7	8	1			74	90
Facial.....	2	4	4	1	1			17	23
Sciatica.....	1	12	3	8			2	5	18
Vertigo.....								2	2
Megrim.....								1	1
Epilepsy.....		4		1	3			2	6
Hysteria.....								9	9
MENTAL DISEASES.....		3		1	1	1			3
Hypochondriasis.....		1		1					1
Insanity.....		1			1				1
Dementia.....		1				1			1

TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE PACIFIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE EYE.....	3	23	10	10	2	—	4	25	53
Conjunctivitis.....	—	9	5	3	—	—	1	14	23
Keratitis.....	1	1	1	1	—	—	—	1	1
Ulcer of cornea.....	—	4	—	2	—	—	2	—	4
Opacity of cornea.....	1	—	1	—	—	—	—	1	2
Iritis.....	—	—	—	—	—	—	—	1	1
Choroiditis.....	—	2	1	1	—	—	—	1	3
Atrophy of optic disk or papilla.....	1	—	—	1	—	—	—	1	2
Ametropia.....	—	—	—	—	—	—	—	3	3
Day-blindness.....	—	1	—	1	—	—	—	1	1
Hemipopia.....	—	1	—	—	1	—	—	2	3
Amblyopia.....	—	1	—	1	—	—	—	—	1
Amaurosis.....	—	2	—	—	1	—	1	—	2
Epiphora.....	—	—	—	—	—	—	—	1	1
Emphysema, eyelids.....	—	1	1	—	—	—	—	—	1
Symblepharon.....	—	1	1	—	—	—	—	—	1
DISEASES OF THE EAR.....	—	12	5	5	1	—	1	15	27
Inflammation of the external meatus, acute.....	—	3	1	1	1	—	—	1	4
Accumulation of wax.....	—	—	—	—	—	—	—	4	4
Inflammation of the middle ear.....	—	9	4	4	—	—	1	9	18
Perforation of the membrana tympani.....	—	—	—	—	—	—	—	1	1
DISEASES OF THE NOSE.....	—	6	—	4	1	—	1	16	21
Epistaxis.....	—	—	—	—	—	—	—	1	1
Inflammation.....	—	2	—	1	—	—	1	—	2
Nasal catarrh.....	—	3	—	3	—	—	—	13	16
Ulceration.....	—	—	—	—	—	—	—	1	1
Ozæna.....	—	—	—	—	—	—	—	1	1
Necrosis.....	—	1	—	—	1	—	—	—	1
DISEASES OF THE CIRCULATORY SYSTEM.....	4	36	2	22	—	10	6	23	63
Pericarditis.....	—	1	1	—	—	—	—	—	1
Endocarditis.....	—	1	—	—	—	1	—	—	1
Valvular disease:	—	—	—	—	—	—	—	—	—
Aortic.....	—	6	—	2	—	2	2	6	12
Mitral.....	2	20	—	15	—	6	1	6	28
Hypertrophy of heart.....	—	1	—	1	—	—	—	1	2
Dilatation of heart.....	—	3	—	1	—	1	1	1	4
Palpitation and irregular action of heart.....	—	—	—	—	—	—	—	2	2
Aneurism of arteries.....	1	1	—	2	—	—	—	—	2
Obstruction of arteries.....	1	1	1	—	—	—	1	—	2
Varix.....	—	2	—	1	—	—	1	7	9
DISEASES OF THE RESPIRATORY SYSTEM.....	10	125	67	47	4	12	5	302	437
Laryngitis, acute.....	—	3	1	2	—	—	—	5	8
Bronchitis:	—	—	—	—	—	—	—	—	—
Acute.....	3	64	36	22	2	5	2	93	160
Chronic.....	—	11	2	7	1	1	—	167	178
Catarrhal.....	—	—	—	—	—	—	—	8	8
Spasmodic asthma.....	1	4	—	2	1	2	—	6	11
Passive congestion of lung.....	—	4	1	2	—	1	—	1	5
Hemorrhage of lung.....	—	2	—	1	—	—	1	2	4
Pneumonia.....	1	19	13	4	—	3	—	9	29
Pneumonic phthisis:	—	—	—	—	—	—	—	—	—
Acute.....	1	—	—	—	—	—	1	—	1
Chronic.....	2	—	1	—	—	—	1	—	2
Emphysema.....	—	—	—	—	—	—	—	1	1
Pleurisy :	—	—	—	—	—	—	—	—	—
Acute.....	1	13	12	2	—	—	—	9	23
Chronic.....	1	5	1	5	—	—	—	1	7



TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE PACIFIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases.									
DISEASES OF THE DIGESTIVE SYSTEM.	6	130	79	39	5	4	9	281	417
Stomatitis								5	5
Ulceration of the dental pulp								1	1
Caries of dentine and cementum								11	11
Inflammation of dental periosteum		1		1					1
Abscess of dental periosteum								3	3
Toothache								1	1
Abscess of the tongue		1		1					1
Ulcer of the tongue	1		1						1
Hypertrophy of tonsils								1	1
Sore throat		1		1				36	37
Quinsy		7	6	1				6	13
Follicular tonsillitis		6	5				1	11	17
Ulceration of fauces		1		1					1
Salivary fistula								1	1
Salivation		2		2					2
Follicular inflammation of the pharynx		13	9	2	1	1		9	22
Ulceration of pharynx		4	2	1			1		4
Hemorrhage of the stomach		1		1					1
Inflammation of the stomach	3	16	11	6	2			14	33
Ulceration of the stomach		1			1				1
Dyspepsia		18	8	6			4	49	67
Gastrodynia		1	1						1
Inflammation of the intestines:									
Catarrhal		3	2	1				2	5
Ulcerative		1	1						1
Abscess in the subperitoneal tissue		1					1		1
Obstruction of the intestines		1		1					1
Hernia	1	3	2	2				34	38
Diarrhea		15	12	3				19	34
Constipation								24	24
Colic		1	1					8	9
Ulceration of the rectum		3	1	2				1	4
Piles:									
Internal		5	3	1	1			4	9
External		1		1				19	20
Fistula in ano	1	9	7	2			1	3	13
Pruritus ani								1	1
Congestion of the liver		6	4	1			1	16	22
Hepatitis		3	1	2					3
Jaundice		1	1					2	3
Inflammation of hepatic ducts and gall bladder		1	1						1
Ascites		1				1			1
Peritonitis		2				2			2
DISEASES OF THE LYMPHATIC SYSTEM.	2	34	13	22			1	78	114
Hypertrophy of the spleen								1	1
Inflammation of lymph glands	1	19	4	16				57	77
Suppuration of lymph glands	1	15	9	6			1	20	36
DISEASES OF THE URINARY SYSTEM	5	34	9	20		6	4	26	65
Acute nephritis	1	6	1	4				3	10
Bright's disease	2	13		9		4	2	4	19
Pyelitis		1				1	2		1
Nephralgia		1	1						1
Hematuria								1	1
Hemorrhage of bladder								1	1
Inflammation of bladder:									
Acute	2	12	7	6		1		5	19
Subacute								2	2
Chronic								1	1
Irritability of bladder								6	6
Retention of urine		1		1					1
Incontinence of urine								3	3





TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

THE PACIFIC.									
DISEASES.	NUMBER OF CASES.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at the close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local diseases.									
PARASITIC DISEASES OF THE SKIN		2		1	1			14	16
Ringworm								4	4
Itch		1		1				6	7
Phthiriasis								2	2
Unclassified		1			1			3	3
Poisons		6	3	2	1			4	10
Metals and their salts		1	1						1
Organic substances		4	2	2				4	8
Vegetable poisons		1			1				1
POISONED WOUNDS		1		1					1
Venomous animals		1		1					1
Injuries	20	293	188	84	10	6	25	393	706
GENERAL INJURIES	3	32	22	9	1	2	1	54	89
Burns and scalds	1	5	5	1				9	15
Effects of cold	1	23	15	7		1	1	45	69
Multiple injury	1	4	2	1	1	1			5
LOCAL INJURIES	17	261	166	75	9	4	24	339	617
Strain of muscles	1	4	4	1				9	14
Rupture of muscles		1	1						1
Rupture of tendons		2		2					2
Abrasion of skin								3	3
Foreign body in subcutaneous tissue		1	1						1
Contusion of scalp		2	1				1	1	3
Scalp wound:									
Bone not exposed	1	13	11	3				9	23
Bone exposed								1	1
Fracture of the vault of the skull		2			1	1			2
Concussion of brain		2	1	1				1	3
Contusion of face								1	1
Wound of face and mouth		5	4	1				16	21
Fracture of facial bones		4	1	2			1	2	6
Contusion of the eye								4	4
Foreign body in cornea or conjunctiva		1	1					3	4
Wound of pinna		1	1						1
Foreign body in external meatus		1	1						1
Fracture of the hyoid bone								1	1
Wound of neck								2	2
Contusion of the chest	1	5	4	2				7	13
Fracture of the ribs		12	9	1	1	1		6	18
Wound of parietes of chest		1	1						1
Contusion of back	1	8	8	1				34	43
Sprain of back	1	8	6	3				10	19
Wound of back								3	3
Fracture of spine		1					1		1
Concussion of cord		2		1			1		2
Contusion of abdomen		4	3			1		8	12
Wound of parietes of abdomen		2	2						2
Wound of the urethra, perineum, scrotum, and penis								1	1
Fracture and dislocation of pelvis		1					1		1
Contusion of upper extremities	2	15	11	2	2		2	22	39
Sprain of the shoulder		2	1	1				3	5
Sprain of the elbow		1		1					1
Sprain of the wrist		7	1	5			1	11	18
Wound of the upper extremities		29	14	13	1		1	88	117
Fracture of the clavicle		4	3	1				2	6
Fracture of the humerus	1	2	2				1		3
Fracture of the radius	1	2	1	2					3





TABLE VII.—TABULAR STATEMENT BY DISTRICTS, ETC.—Continued.

[illegible]

TABLE VIII.—TABULAR STATEMENT, BY DISTRICTS, OF CAUSES OF MORTALITY AMONG PATIENTS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1891.

CAUSES OF DEATH.	Total.	DISTRICTS.								
		North Atlantic.	Middle Atlantic.	South Atlantic.	The Gulf.	The Ohio.	The Mississippi.	The Great Lakes.	The Pacific.	Quarantine stations.
<b>Total Deaths from all Causes</b> .....	488	45	88	60	54	38	53	66	82	2
FROM DISEASE .....	462	44	88	58	51	34	48	61	76	2
FROM INJURY .....	26	1		2	3	4	5	5	6	
<b>General Diseases</b> .....	257	34	40	35	26	22	24	36	38	2
Influenza .....	8			2	1	1		3	1	
Diphtheria .....	1	1								
Cerebro-spinal fever .....	1					1				
Enteric fever .....	37	7	5	4		3	4	8	6	
Typho-malarial fever .....	2			1		1				
Yellow fever .....	2									2
Sporadic cholera .....	1			1						
Dysentery .....	8				2	1	5			
Malarial intermittent fever .....	8		2	1	2		1		2	
Malarial remittent fever .....	7			3	2	1	1			
Malarial cachexia .....	1				1					
Beri-Beri .....	1	1								
Septicæmia .....	1					1				
Syphilis, secondary .....	6		3					3		
Alcoholism .....	4	1					1	1	1	
Rheumatic fever .....	2				1	1				
Rheumatism .....	9		3	1			1	2	2	
Osteo-arthritis .....	2	1							1	
Nonmalignant new growth .....	3		1	1					1	
Malignant new growth .....	5		2		2	1				
Tubercle .....	143	23	23	20	15	9	11	19	23	
Scrofula .....	2					1			1	
Diabetes mellitus .....	3		1	1		1				
<b>Local Diseases</b> .....										
<b>DISEASES OF THE NERVOUS SYSTEM</b> .....	18	1	3	2	3		2	3	4	
Congestion of the brain .....	1							1		
Hemorrhage, cerebral .....	1			1						
Hemorrhage spinal cord .....	1							1		
Inflammation:										
Of membranes of brain and spinal cord .....	3		2						1	
Of cerebral membranes .....	1								1	
Locomotor ataxy .....	1								1	
Paralysis .....	1						1			
Hemiplegia .....	4		1		1		1		1	
Paraplegia .....	1			1						
Paralysis, acute, ascending .....	1							1		
Spasm of muscle .....	1				1					
Neuralgia .....	1				1					
Epilepsy .....	1	1								
<b>MENTAL DISEASES</b> .....	4			2	1				1	
Mania .....	2			1	1					
Dementia .....	1								1	
General paralysis of the insane .....	1			1						
<b>DISEASES OF THE CIRCULATORY SYSTEM</b> .....	48	5	10	7	5	4	5	2	10	
Endocarditis .....	2			1					1	
Valvular disease:										
Aortic .....	11	2	2	3	1	1			2	
Mitral .....	25	2	7	2	2	3	2	1	6	
Degeneration of heart, pigmentary .....	1								1	
Dilatation of heart .....	1				1					
Aneurism of arteries .....	8	1	1	1	1		3	1		



TABLE VIII.—STATEMENT, BY DISTRICTS, OF CAUSES OF MORTALITY, ETC.—  
Continued.

CAUSES OF DEATH.	Total.	DISTRICTS.								
		North Atlantic.	Middle Atlantic.	South Atlantic.	The Gulf.	The Ohio.	The Mississippi.	The Great Lakes.	The Pacific.	Quarantine stations.
Local Diseases.										
DISEASES OF THE RESPIRATORY SYSTEM	74	2	22	7	9	5	7	10	12	
Edema glottidis	1					1				
Bronchitis:										
Acute	10		1	1			2	1	5	
Chronic	4			1				2	1	
Catarrhal	1							1		
Spasmodic asthma	5		2					1	2	
Passive congestion of lung	1								1	
Pneumonia	32	1	10	4	6	2	4	2	3	
Abscess of lung	1							1		
Pneumonic phthisis:										
Acute	1						1			
Chronic	15	1	9		3	1		1		
Pleurisy, acute	2			1		1				
Empyema	1							1		
DISEASES OF THE DIGESTIVE SYSTEM	26		6	3	5	1	5	2	4	
Follicular inflammation of the pharynx	1								1	
Ulceration of the stomach	1		1							
Inflammation of the intestines:										
Catarrhal	3		1				2			
Ulcerative	2		1					1		
Obstruction of the intestines	1			1						
Diarrhea	4			2	2					
Fistula in ano	1				1					
Hepatitis	1		1							
Cirrhosis of liver	4		1		1	1		1		
Abscess of liver	3				1		2			
Ascites	2		1						1	
Peritonitis	3						1		2	
DISEASES OF THE LYMPHATIC SYSTEM	3	1	1					1		
Abscess of the spleen	1	1								
Suppuration of lymph glands	2		1					1		
DISEASES OF THE URINARY SYSTEM	23	1	3	1		1	5	6	6	
Acute nephritis	2							2		
Bright's disease	18		3	1		1	5	4	4	
Pyelitis	1								1	
Inflammation of bladder:										
Acute	1								1	
Chronic	1	1								
DISEASES OF THE GENERATIVE SYSTEM	4		2		2					
Stricture of urethra, organic	3		1		2					
Urinary fistula	1		1							
DISEASES OF THE ORGANS OF LOCOMOTION	4			1		1		1	1	
Chronic abscess of bones	1					1				
Ankylosis	1							1		
Psoas, lumbar, and other abscesses	1			1						
Caries and necrosis of spine	1								1	
DISEASES OF THE CONNECTIVE TISSUE			1							
Edema			1							

TABLE VIII.—STATEMENTS, BY DISTRICTS, OF CAUSES OF MORTALITY, ETC.—  
Continued.

CAUSES OF DEATH.	Total.	DISTRICTS.								
		North Atlantic.	Middle Atlantic.	South Atlantic.	The Gulf.	The Ohio.	The Mississippi.	The Great Lakes.	The Pacific.	Quarantine stations.
Injuries .....	26	1		2	3	4	5	5	6	
GENERAL INJURIES .....	7			1	1	1	2		2	
Burns and scalds .....	3					1	2			
Effects of cold .....	1								1	
Heat stroke .....	1				1					
Multiple injury .....	2			1					1	
LOCAL INJURIES .....	19	1		1	2	3	3	5	4	
Scalp wound, bone exposed .....	1					1				
Fracture of the vault of the skull .....	6				1		2	2	1	
Compression of brain .....	2			1		1				
Fracture of the ribs .....	1								1	
Perforating wound of chest .....	1					1				
Fracture of spine .....	2				1			1		
Contusion of abdomen .....	1								1	
Wound of the upper extremities .....	1							1		
Fracture of the clavicle .....	1	1								
Contusion of the lower extremities .....	1							1		
Wound of the lower extremities .....	1								1	
Wound of joint, lower extremities .....	1						1			

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1891.

Operations.	No. of cases.	Remarks.
Total number of Operations .....	796	
REMOVAL OF TUMORS .....	42	
For sebaceous cyst .....	11	Excision, 10; incised, 1.
For cyst of face .....	1	Excision.
For cyst of neck .....	1	
For cystic tumor of neck .....	1	Do.
For cystic tumor of arm .....	1	Do.
For tumor, scalp .....	1	
For tumor, ear .....	1	Do.
For tumor, face .....	1	
For tumor, side .....	1	Do.
For lipoma .....	1	Do.
For lipoma of shoulder .....	1	Do.
For lipoma of arm .....	1	Do.
For fibroma of scalp .....	1	Do.
For fibroma of superior maxilla .....	1	Do.
For fibroma of shoulder .....	1	Do.
For chondroma .....	1	Do.
For ganglion cyst of popliteal space .....	1	Do.
For papilloma of nose .....	2	Do.
For nævus .....	1	Compression.
For nonmalignant tumor of ear .....	1	Removal.
For epithelioma of lip .....	2	Excision.
For epithelioma of face .....	1	Do.
For epithelioma of prepuce .....	1	Do.
For carcinoma of axilla .....	1	Do.
For carcinoma of lymph glands .....	1	Do.
For sarcoma .....	1	Do.
For sarcoma of superior maxilla .....	1	Excision; recovered.
For sarcoma of testes .....	1	Do.
For malignant tumor of hand .....	1	Unsuccessful; died.
For tubercle of hip .....	1	Aspirated.
REMOVAL OF FOREIGN BODIES .....	6	
Gunshot wound .....	1	Bullet removed.



TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1891—Continued.

Operations.	No. of cases.	Remarks.
<b>Operations.</b>		
<b>REMOVAL OF FOREIGN BODIES—Continued.</b>		
Gunshot wound, shoulder.....	1	Bullet removed.
Gunshot wound, chest.....	1	Do.
Gunshot wound, thigh.....	1	Do.
Gunshot wound, foot.....	1	Do.
Foreign body in hand.....	1	Removal.
<b>OPENING OF ABSCESSSES.....</b>	<b>38</b>	
Abscess of connective tissue.....	3	Incised.
Abscess of dental periosteum.....	3	Do.
Abscess of neck.....	1	Do.
Abscess of ear.....	1	Do.
Abscess of axilla.....	4	Incised and drained, 2.
Abscess of forearm.....	1	
Abscess of hand.....	6	Do.
Lumbar abscess.....	1	Do.
Psoas abscess.....	1	Incised; died.
Abscess of perineum.....	2	Do.
Abscess of hip.....	1	Do.
Abscess of thigh.....	1	Do.
Abscess of knee.....	1	Do.
Periurethral abscess.....	1	Do.
Abscess of prepuce.....	1	Do.
Abscess of scrotum.....	1	Do.
Abscess of ischio-rectal fossa.....	2	Do.
Thecal abscess.....	1	Do.
Abscess of liver.....	5	Incised, 3; died, 1; laparotomy, 1.
Chronic abscess.....	1	Recovered; incised and curetted.
<b>OPERATION ON NERVES.....</b>	<b>1</b>	
For wound of fifth nerve and Steno's duct.....	1	Nerve sutured.
<b>OPERATIONS ON THE EYE AND APPENDAGES.....</b>	<b>12</b>	
For pterygium.....	1	Excision.
For foreign body in cornea.....	1	Removal.
For wound of cornea.....	1	Enucleation of eye.
For corneal ulcer.....	1	Paracentesis.
For dislocation of lens of eye.....	1	Sutured.
For synechia and occlusion of pupil.....	1	Iridectomy.
For chalazion.....	1	Enucleation.
For wound of eyelid.....	1	Plastic operation.
For dacryocystitis.....	1	Punctured.
For abscess of lachrymal sac.....	2	Incised and scraped, 1; dilated, 1.
For ectropion.....	1	Plastic operation.
<b>OPERATIONS ON THE EAR.....</b>	<b>10</b>	
For stricture external meatus.....	1	Meatotomy.
For polypus of external meatus.....	2	
For periostitis of mastoid process.....	2	Periosteum incised.
For necrosis of mastoid process.....	1	Trephined.
For suppuration of middle ear, mastoid process.....	2	
For polypus.....	2	Removed by snare, 2.
<b>OPERATIONS ON THE HEAD.....</b>	<b>6</b>	
For wound of chin.....	1	Sutured.
For compound fracture of skull.....	1	Trephined, 1; died, 1.
For compound comminuted fracture of skull.....	1	Fragments removed.
For necrosis of skull, outer table.....	1	Necrosed bone removed.
For fracture right temporal bone.....	1	Trephined, 1; died, 1.
For necrosis of malar bone.....	1	Do.
<b>OPERATIONS ON THE FACE AND MOUTH.....</b>	<b>11</b>	
For epulis.....	1	Removed.
For hypertrophy of tonsil.....	5	Tonsillotomy.
For ranula.....	1	Incised.
For fissure of soft palate.....	2	Staphylorrhaphy.
For ulcer of uvula.....	1	Amputation.
For congenital tongue tie.....	1	Division of frænum.
<b>OPERATIONS ON THE ARTERIES.....</b>	<b>4</b>	
For aneurism popliteal artery.....	2	Ligation; successful.
For traumatic aneurism of posterior tibial.....	1	Do.
For wound of digital artery.....	1	Do.
<b>OPERATIONS ON VEINS.....</b>	<b>4</b>	
For varix.....	4	Ligation, 3; obliteration, 1.
<b>OPERATIONS ON THE RESPIRATORY ORGANS.....</b>	<b>8</b>	
For hydrothorax.....	2	Aspirated, 1; pleurotomy, 1.
For empyæma.....	5	Aspirated, 4; pleurotomy, 1.
For gunshot wound of chest with empyæma.....	1	Pleurotomy and drainage.

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1891—Continued.

Operations.	No. of cases.	Remarks.
<b>Operations.</b>		
<b>OPERATIONS ON THE DIGESTIVE ORGANS</b> .....	63	
For hernia, irreducible .....	2	Taxis, 1; chloroform, 1; successful.
For hernia, strangulated .....	4	Sac excised, 1; died, 1.
For hernia, radical cure .....	10	Successful.
For prolapsus of rectum .....	2	Resection, 1; ligation of tissues, 1.
For fissure in ano .....	7	Dilatation and cautery.
For fistula in ano .....	17	Incised, 14; elastic ligation, 3.
For stricture of rectum .....	1	Dilated.
For hemorrhoids .....	17	Ligation, 13; exertion, 3.
For ascites .....	7	Paracentesis, 3.
<b>OPERATIONS ON THE LYMPHATIC GLANDS</b> .....	239	
For inflammation of lymph glands, groin .....	62	Enucleation.
For suppuration of lymph glands of neck .....	1	Do.
For suppuration of lymph glands of groin .....	176	Enucleation, 118; incision, 47.
<b>OPERATIONS ON THE URINARY ORGANS</b> .....	98	
For stone in bladder .....	1	Supracystic cystotomy.
For stricture, urethra:		
(a) Gradual dilatation .....	32	
(b) Forcible dilatation .....	15	
(c) Internal urethrotomy .....	40	
(d) External urethrotomy .....	2	
(e) Electrolysis .....	1	
For urinary fistula .....	2	Curetted and sutured.
For hypospodias .....	2	Amputation, 1; suture, 1.
For chronic cystitis .....	1	Suprapubic cystotomy.
For hypertrophy of prostate gland .....	1	Cystotomy.
For stricture of urethra .....	1	Aspiration of bladder.
<b>OPERATIONS ON THE GENERATIVE ORGANS</b> .....	130	
For phimosis .....	93	Circumcision, 76; slitting, 11.
For paraphimosis .....	6	Circumcision, 1; slitting, 3; reduction, 2.
For hydrocele tunica vaginalis .....	12	Radical cure, 3; aspirated, 8; injected, 1.
For varicocele .....	3	Ligation.
For ulcer penis and phimosis .....	5	Circumcision.
For ulcer of corpus cavernosum .....	1	Incision.
For condyloma of penis .....	3	Removed.
For tubercle of testis .....	3	Removal.
For epithelioma of penis .....	3	Amputation, 2; cauterization, 1.
For condylomata of penis .....	1	Removal.
<b>OPERATIONS ON THE GENERATIVE ORGANS, FEMALE.</b>	1	
For metrorrhagia .....	1	Curetted.
<b>OPERATIONS ON THE ORGANS OF LOCOMOTION</b> .....	51	
On bones:		
For fracture of superior and inferior maxillæ .....	1	Wired.
For fracture of the humerus, ununited .....	1	Bone resected and wired.
For fracture of radius, compound .....	1	Reduced.
For fracture of metacarpal bone .....	1	Do.
For fracture of femur .....	2	Reduced, 1; resection, 1,
For fracture of patella .....	1	Reduced.
For fracture of both bones of leg .....	1	Do.
For caries of femur .....	1	Removed.
For caries of metacarpal bone .....	1	Do.
For osteo-myelitis of femur .....	1	Do.
For necrosis of fingers .....	3	Exsection.
For necrosis of inferior maxilla .....	2	Bone removed.
For necrosis of superior maxilla .....	1	Do.
For necrosis of sternum .....	3	Do.
For necrosis of ilium .....	2	Do.
For necrosis of sacrum .....	1	Do.
For necrosis of femur .....	1	Do.
For necrosis of tibia .....	3	Do.
On joints:		
Reductions of dislocations:		
Shoulder .....	2	
Humerus .....	1	
Clavicle, acromial end .....	1	
Elbow .....	1	
Hip .....	1	
For ankylosis of elbow .....	1	Forcible extrusion.
For ankylosis of knee .....	3	Do.
For acute synovitis, knee .....	7	Aspirated.
For suppurative arthritis of hip .....	1	Excision.



TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1891—Continued.

Operations.	No of cases.	Remarks.
<b>Operations.</b>		
<b>OPERATIONS ON THE ORGANS OF LOCOMOTION—</b>		
Continued.		
On joints—Continued.		
For bursal inflammation, knee .....	1	Injection with iodine.
For hygroma, bursa patellae .....	1	Incision.
For suppurating bursa .....	1	Incised and curetted.
For tubercular bursa patella .....	1	Do.
For tubercle of knee .....	1	Do.
<b>OPERATIONS ON TENDONS .....</b>		
For torticollis .....	3	Tenotomy.
For contracted palma fascia .....	1	Tenotomy; successful.
For ganglion of wrist .....	1	Successful.
<b>AMPUTATIONS .....</b>		
Fingers for frostbite .....	51	
Finger for ankylosis .....	1	
Fingers for contracted tendon .....	2	
Fingers for necrosis .....	6	
Fingers for compound fracture .....	10	
Finger for whitlow .....	2	
Fingers for lacerated wound .....	1	
Finger for contused wound .....	7	
Fingers for gangrene .....	1	
Fingers for poisoned wound .....	1	
Hand for necrosis of bones, carpal and meta-	4	
carpal .....	1	
Hand for lacerated wound .....	1	
At shoulder for traumatic compound disloca-	1	
tion .....	1	
Toes for lacerated wound .....	4	
Foot for lacerated wound .....	2	
Foot for caries of tarsal bones .....	1	
Foot for senile gangrene .....	1	
Leg for caries of tibia and fibula .....	1	
Leg for elephantiasis .....	1	Died.
Thigh for tubercle of leg .....	1	
Thigh for caries of tibia .....	1	
At hip joint for compound comminuted frac-	1	
ture .....	1	
<b>OPERATIONS ON THE SKIN .....</b>		
For chronic ulcer .....	32	
	11	Cauterization, 2; skin grafting, 8;
		incised, 1.
For onychia .....	5	Avulsion, 4; amputation, 1.
For paronychia .....	1	Removal of nail.
For ingrowing nail .....	1	Do.
For whitlow .....	5	Incised.
<b>UNCLASSIFIED .....</b>		
Penetrating wound of abdomen .....	9	
Scalp wound .....	1	Drained.
Wound of neck .....	1	Stitched.
Wound of foot .....	1	Sutured.
	1	Do.
Incised wound of forearm .....	1	Do.
Incised wound of forearm with radial artery	1	Artery ligated; wound sutured.
severed.		
Ulceration of flap .....	1	Plastic operation.
Poisoned wound of thigh .....	1	Removal of diseased tissue.
Carbuncle .....	1	Incised.

TABLE X.—RATIO OF DEATHS FROM SPECIFIC CAUSES.

Deaths from—	Per 100 from all causes.	Deaths from—	Per 100 from all causes.
General diseases .....	52.66	Diseases of the digestive organs .....	5.33
Diseases of the nervous system .....	3.69	Diseases of the urinary system .....	4.71
Diseases of the circulatory system .....	9.84	Injuries .....	5.33
Diseases of the respiratory system .....	15.16	From all other causes .....	3.28

TABLE XI.—RATIO OF DEATHS IN EACH DISTRICT.

Districts.	Per 100 patients treated in hospitals.	Districts.	Per 100 patients treated in hospitals.
North Atlantic .....	2.50	The Mississippi.....	3.67
Middle Atlantic .....	3.77	The Great Lakes.....	2.44
South Atlantic .....	2.56	The Pacific.....	4.43
The Gulf.....	3.88	The quarantine stations.....	.83
The Ohio.....	2.54		

TABLE XII.—COMPARATIVE EXHIBIT.—MORTALITY PER 100 PATIENTS TREATED IN HOSPITAL, BY DISTRICTS, 1880-1891.

Districts.	General average.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
North Atlantic .....	3.18	2.19	2.84	4.00	3.50	3.59	3.95	3.09	3.04	3.53	3.25	2.65	2.50
Middle Atlantic .....	4.04	4.88	3.63	3.92	3.54	3.87	3.34	3.27	4.85	4.80	3.92	4.66	3.77
South Atlantic .....	3.20	2.89	3.22	3.05	3.97	2.86	3.05	3.54	3.53	2.54	3.55	3.64	2.56
The Gulf .....	3.48	2.90	3.94	4.98	3.49	4.10	2.49	2.96	3.82	2.78	3.08	3.40	3.88
The Ohio .....	3.53	3.69	4.38	5.64	5.50	4.33	2.43	3.05	3.06	2.01	3.52	2.26	2.54
The Mississippi.....	3.58	2.84	3.29	3.51	4.35	4.08	2.93	2.79	4.19	4.78	3.52	3.04	3.67
The Great Lakes.....	2.66	2.01	3.16	2.49	2.51	3.07	2.79	2.37	2.72	2.83	2.93	2.63	2.44
The Pacific .....	4.49	4.50	6.09	3.35	3.96	4.88	3.30	5.72	4.59	4.45	4.22	4.42	4.43

TABLE XIII.—COMPARATIVE EXHIBIT.—RATIO OF DEATHS FROM SPECIFIC CAUSES, 1880-1891.

Deaths from—	General average.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
General diseases .....	48.37	47.35	46.15	51.75	50.00	48.67	46.61	48.40	45.63	46.58	45.47	50.20	52.66
Diseases of the—													
Nervous system.....	6.07	5.02	7.25	5.57	6.77	4.40	8.07	4.91	4.79	6.84	5.69	4.06	3.69
Circulatory system.....	7.84	8.35	7.03	5.15	6.38	6.14	10.42	9.09	7.29	10.04	7.58	5.81	9.84
Respiratory system.....	15.71	13.65	17.80	12.58	16.33	13.90	14.06	16.22	17.50	14.96	17.26	19.10	15.16
Digestive system.....	8.64	10.87	8.13	12.99	10.16	9.20	9.90	7.37	7.08	8.97	7.37	6.30	5.33
Urinary system.....	5.12	5.57	4.40	5.15	3.98	7.36	5.21	4.18	6.25	5.34	4.63	4.67	4.71
Injuries.....	5.61	5.85	6.60	4.54	3.99	5.94	3.39	5.41	7.92	4.50	8.00	5.81	5.33
From all other causes.....	3.24	3.34	2.64	2.27	2.39	4.30	2.34	4.42	3.54	2.77	4.00	3.65	3.28

TABLE XIV.—COMPARATIVE EXHIBIT.—AVERAGE DURATION OF TREATMENT IN HOSPITAL IN EACH DISTRICT, 1880-1891.

Districts.	General average.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
North Atlantic .....	26.89	26.64	22.67	24.86	26.60	30.13	30.22	26.56	23.89	26.76	30.05	29.21	29.68
Middle Atlantic .....	26.56	26.19	27.68	26.18	24.50	26.84	25.32	25.84	29.21	26.99	26.92	26.32	26.81
South Atlantic .....	26.02	28.52	23.80	23.20	23.70	23.46	26.06	26.72	27.99	26.53	27.91	28.27	26.19
The Gulf.....	22.12	24.55	23.60	35.25	20.10	19.97	18.63	19.43	20.82	23.24	24.55	23.21	21.07
The Ohio.....	24.08	24.57	23.88	29.22	26.50	22.56	23.18	23.61	21.87	21.62	22.52	24.52	24.92
The Mississippi.....	20.72	20.74	19.66	17.55	22.50	18.16	20.28	20.79	21.72	21.23	22.60	20.88	22.61
The Great Lakes .....	28.03	26.13	29.42	26.03	27.70	29.75	28.10	28.61	26.31	26.72	29.69	30.82	27.09
The Pacific .....	30.76	34.41	32.03	27.55	26.10	31.04	31.09	29.74	29.72	29.96	31.12	33.68	32.68



TABLE XV.—STATEMENT OF MORTALITY OF PASSENGERS ON VOYAGES FROM FOREIGN PORTS TO THE UNITED STATES, JULY 1, 1890, TO JUNE 30, 1891.

Date.	Name of vessel.	Where from.	Sex.	Age.	Cause of death as reported to customs officer.
Apr. 26	Alaska	Liverpool	Female	8	Croup.
May 3	Augia	Hamburg	Male	55	Pneumonia.
3	Amsterdam	Amsterdam	Female	32	Heart disease.
23	Augusta Victoria	Hamburg	do	66	Do.
Nov. 8	do	do	do	58	Apoplexy.
Mar. 23	Aurania	Liverpool	Male	19	Heart disease.
Sept. 5	Aller	Bremen	do	57	Apoplexy.
May 8	Britannic	Liverpool	do	28	Pneumonia.
July 17	British Prince	do	do	38	Heart disease.
June 8	Burgundia	Mediterranean ports	do	21	Varioloid.
Apr. 12	Catalonia	Liverpool	Female	44	Heart disease.
Sept. 16	Caladonia	Mediterranean ports	do	53	Do.
Mar. 24	California	do	Male	32	Pneumonia.
June 6	Canadian	Glasgow	do	54	Delirium tremens.
Apr. 21	Cephalonia	Liverpool	Female	25	Consumption.
Mar. 18	City of Chester	do	Male	47	Heart disease.
June 27	City of Chicago	do	Female	56	Asthenia.
Apr. 13	Columbia	Mediterranean ports	Male	36	Pneumonia.
Apr. 30	Dresden	Bremen	Female	51	Inflammation of lungs.
Aug. 4	Eider	do	Male	65	Delirium tremens.
Dec. 9	Ems	do	Female	64	Senile debility.
May 9	Ertella	Mediterranean ports	do	11	Convulsions.
Oct. 30	do	Palermo, Sicily	Male	30	Pulmonary affection.
Apr. 15	Friesland	Antwerp	do	17	Paralysis.
July 8	Fulda	Bremen	do	9	Croup.
Apr. 24	Germanic	Liverpool	do	25	Bronchitis.
Sept. 5	do	do	Female	51	Urine poisoning.
June 9	Gregoria	Mediterranean ports	Male	30	Pneumonia.
Sept. 25	Hohenzollern	Bremen	Female	62	Gastritis.
Mar. 13	Hermann	do	do	70	Marasmus.
May 16	India	Mediterranean ports	Male	40	Pneumonia.
July 30	Italy	Palermo, Sicily	do	33	Acute bronchitis.
May 7	Karlsruhe	Bremen	do	49	Apoplexy.
7	do	do	do	10	Diphtheria.
Apr. 30	Lahn	do	do	32	Delirium tremens.
May 28	do	do	do	27	Apoplexy.
Apr. 28	Litimbro	Mediterranean ports	do	25	Meningitis.
Mar. 17	Lord Gough	Liverpool	Female	47	Bronchitis.
June 26	La Bretagne	Havre	Male	66	General debility.
July 2	Majestic	Liverpool	do	24	Consumption.
Apr. 25	Marsala	Hamburg	Female	36	Eclampsia.
Feb. 8	Moravia	do	Male	8	Diphtheria.
Apr. 30	do	do	do	28	Delirium tremens.
9	Munchen	Bremen	Female	8	Scarlatina.
Aug. 27	do	do	Male	45	Cystitis.
July 2	Nestorian	Glasgow	do	23	Heart disease.
Nov. 15	Neustria	Mediterranean ports	Female	31	Cramp.
15	do	do	Male	56	Apoplexy.
8	Nurnberg	Bremen	do	8	Edema.
May 29	Obdam	Rotterdam	Female	75	Bronchitis.
13	Ohio	Liverpool	do	29	Heart disease.
Aug. 12	do	do	Male	30	Dysentery.
12	do	do	Female	46	Exhaustion.
Sept. 26	do	do	do	14	Pneumonia.
Apr. 11	Pennland	Antwerp	do	5	Do.
May 4	Plata	Palermo, Sicily	Male	41	Concussion of brain.
Apr. 25	Pridavia	Mediterranean ports	do	10	Meningitis.
June 10	Polcevera	do	do	29	Apoplexy.
Apr. 26	Polynesia	Stettin	do	22	Heart disease.
July 5	Prof. Morse	Utila	do	54	Malaria.
5	do	do	do	40	Do.
5	do	do	do	46	Do.
5	do	do	do	22	Dysentery.
5	do	do	do	29	Do.
Aug. 20	Rhine	Bremen	do	59	Inflammation of lungs.
20	Russia	Hamburg	do	9	Inflammation of stomach
Feb. 10	do	do	Female	12	Heart disease.
Nov. 8	Saale	Bremen	do	65	Do.
Dec. 7	do	do	Male	27	Acute mania.
7	do	do	Female	50	Pneumonia.
Nov. 15	Salier	do	Male	8	Inflammation of lungs.
May 8	Samovia	Liverpool	do	65	Cardiac failure.
Mar. 24	Sarmatian	Glasgow	Female	19	Heart disease.
26	Scandia	Hamburg	Male	18	Phthisis.
May 11	Schiedam	Rotterdam	Female	76	Apoplexy.
4	State of Nevada	Glasgow	do	56	Senile debility.
Mar. 5	Stuttgart	Bremen	Male	71	Apoplexy.
Nov. 30	Suevia	Hamburg	Female	67	Heart disease.
Apr. 22	do	do	do	67	Apoplexy.
Mar. 18	Waisland	Antwerp	Male	50	Delirium tremens.
Apr. 23	Wisconsin	Liverpool	do	32	Do.

XVI.—NATIVITIES OF PATIENTS TREATED IN U. S. MARINE HOSPITALS DURING THE PAST FISCAL YEAR.

Countries.	Number.	Countries.	Number.
Total .....	14,423	Ireland .....	819
Africa .....	16	Italy .....	60
Austria .....	114	Japan .....	12
Australia .....	15	Mexico .....	8
Azore Islands .....	5	New Zealand .....	7
Belgium .....	14	Norway .....	564
Brazil .....	13	Philippine Islands .....	4
Canada .....	542	Poland .....	7
Cape de Verde .....	27	Portugal .....	55
Chile .....	6	Prince Edward Island .....	13
China .....	5	Russia .....	83
Denmark .....	118	Scotland .....	202
England .....	707	Scandinavia .....	5
Fayal .....	2	Spain .....	24
Finland .....	290	Sweden .....	574
France .....	109	Switzerland .....	16
Germany .....	588	United States of America .....	8,952
Greece .....	33	United States of Colombia .....	7
Heligoland .....	6	West Indies .....	169
Hungary .....	8	Unknown .....	224



## CONTRACTS FOR THE CARE OF SEAMEN, ETC.

[CIRCULAR.]

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TREASURY DEPARTMENT,  
OFFICE OF THE SUPERVISING SURGEON-GENERAL  
U. S. MARINE HOSPITAL SERVICE,  
*Washington, D. C., June 9, 1891.*

The following contracts for the care of seamen entitled to relief from this Service, for the fiscal year ending June 30, 1892, are published for the information of accounting officers of the Treasury Department, disbursing agents, medical officers of the Marine Hospital Service, acting assistant surgeons, and customs officers. This circular is to be regarded as official notification of the acceptance of the proposals made by the parties designated, and must be cited, giving its number and date, on all bills for the treatment and maintenance of seamen, and for the burial of deceased patients, as the authority for any expenditure incurred under its provisions. Charges will be allowed only for actual time in hospital. The right is reserved by the Secretary of the Treasury to terminate any contract whenever the interests of the Service require it. All relief must be furnished in accordance with the revised regulations approved 1889, and subsequent circulars; and in consequence of the largely increased expenditures for relief, and of the diminished sources of income for the Marine Hospital Service, it has become necessary to give notice that, as provided in paragraph 177 of the regulations, no allowance can be made for expenditures incurred at any other station than those named in this circular.

The term "contagious diseases" wherever occurring in this circular, except as to specific contracts made otherwise, includes only those diseases which, under usual municipal regulations, are required to be treated in a pesthouse, namely: cholera, yellow fever, plague, or smallpox, and in some municipalities, measles.

WALTER WYMAN,  
*Supervising Surgeon-General U. S. Marine Hospital Service.*

Approved:

A. B. NETTLETON,  
*Assistant Secretary of the Treasury.*

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*Albany, N. Y.*—The medical attendance to be furnished by an acting assistant surgeon; the Albany hospital to furnish quarters, subsistence, nursing, and medicine, at \$1 per day.

*Alexandria, Va.*—The medical attendance to be furnished by an acting assistant surgeon; the Alexandria infirmary to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day.

*Apalachicola, Fla.*—Dr. J. D. Rush to furnish medical attendance and medicines, at \$50 per month; Martha Campbell to furnish quarters, subsistence, and nursing, at \$1 per day, and to provide for the burial of deceased patients, at \$12.50 each.

*Ashland, Wis.*—St. Joseph's Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$1 per day.

*Ashtabula, Ohio.*—The medical attendance to be furnished by an acting assistant surgeon; Mrs. Henry Whelpley to furnish quarters, subsistence, and nursing, at \$1 per day; contagious diseases, \$1.50 per day; John Ducro & Sons to provide for the burial of deceased patients, at \$14 each. Patients requiring long continued hospital treatment will be furnished transportation to Cleveland, Ohio.

*Astoria, Oregon.*—St. Mary's Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$1 per day; F. H. Surprenant to provide for the burial of deceased patients, at \$25 each.

*Baltimore, Md.*—Hospital patients to be cared for in the U. S. marine hospital; George Rinehart to provide for the burial of deceased patients, at \$17 each.

*Bangor, Me.*—The medical attendance to be furnished by an acting assistant surgeon; Thomas E. Murray to furnish quarters, subsistence, and nursing, at \$1 per day; Abel Hunt to provide for the burial of deceased patients, at \$10 each.

*Bath, Me.*—The medical attendance to be furnished by an acting assistant surgeon; William J. Howard to furnish quarters, subsistence, and nursing, at \$1 per day; John M. Clark to provide for the burial of deceased patients, at \$14 each. Patients requiring long continued hospital treatment will be furnished transportation to the U. S. marine hospital at Portland, Me.

*Belfast, Me.*—The medical attendance to be furnished by an acting assistant surgeon; Almerin Dickey to furnish quarters, subsistence, and nursing, at \$1.25 per day.

*Bismarck, N. Dak.*—The medical attendance will be furnished by an acting assistant surgeon.

*Boston, Mass.*—Hospital patients to be cared for in the U. S. marine hospital at Chelsea, Mass.; burial of deceased patients at the hospital cemetery; burial of foreign patients, at \$10 each.

*Bridgeport, Conn.*—Bridgeport hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$1 per day; Hawley, Wilmot & Reynolds to provide for the burial of deceased patients, at \$16 each.

*Brownsville, Tex.*—The medical attendance to be furnished by an acting assistant surgeon.

*Brunswick, Ga.*—The medical attendance to be furnished by an acting assistant surgeon; Johanna Foley to furnish quarters, subsistence, and nursing, at 90 cents per day; contagious diseases at \$1.75 per day; Charles G. Moore to provide for the burial of deceased patients, at \$15 each.

*Buffalo, N. Y.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; the Buffalo hospital (Sisters of Charity) to furnish quarters, subsistence, nursing, and medicines, at 75 cents per day; contagious diseases, at \$3 per day; and to provide for the burial of deceased patients, at \$7.50 each.

*Burlington, Iowa.*—The St. Francis Hospital to furnish quarters, subsistence, medical attendance, nursing, and medicines, at 90 cents per day; J. Prugh to provide for the burial of deceased patients, at \$15 each.

*Burlington, Vt.*—The "Mary Fletcher Hospital" to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$1 per day.

*Cairo, Ill.*—Hospital patients to be cared for in the U. S. marine hospital; L. E. Falconer to provide for the burial of deceased patients, at \$11.50 each. Allowance will be made, when necessary, for ambulance transportation, at rates not to exceed \$1.50 for day service, and \$2 for night service.

*Cedar Keys, Fla.*—R. T. Walker, M. D., to furnish medical attendance and medicines for both hospital and out-patients, at \$25 per month; John H. Sutton to furnish quarters, subsistence, and nursing, at \$1.50 per day.

*Charleston, S. C.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; out-patients to be treated at the dispensary (Atlantic Wharf); St. Francis Xavier's Infirmary to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day; contagious diseases, \$1.50 per day; and to provide for the burial of deceased patients, at \$10 each. Seamen requiring long-continued hospital treatment will be furnished transportation to the United States marine hospital at Wilmington, N. C.

*Chattanooga, Tenn.*—The medical attendance to be furnished by an acting assistant surgeon; W. T. Walker, chairman county hospital, to furnish quarters, subsistence, nursing, and medicines, at 65 cents per day.

*Chicago, Ill.*—Hospital patients to be cared for in the U. S. marine hospital; Theodore Speaber to provide for the burial of deceased patients, at \$19 each.

*Cincinnati, Ohio.*—Hospital patients to be cared for in the U. S. Marine hospital; dispensary at the hospital, southeast corner Third and Kilgour streets; P. Gilligan & Sons to provide for the burial of deceased white patients, at \$20 each; colored patients, at \$18 each.

*Cleveland, Ohio.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; the "Cleveland City Hospital Association" to furnish quarters, subsistence, nursing, and medicines, in the U. S. marine hospital, under lease of September 21, 1875, at 64 cents per day. The hospital to be



kept in repair by the association; Flynn, Abel & Froelk to provide for the burial of deceased patients, at \$7.95 each; and ambulance service at \$1 for each patient.

*Corpus Christi, Tex.*—The medical attendance to be furnished by an acting assistant surgeon; James E. Ellis to furnish quarters, subsistence, and nursing, at \$1.25 per day.

*Crisfield, Md.*—The medical attendance to be furnished by an acting assistant surgeon; John R. Wilson to furnish quarters, subsistence, and nursing, at 70 cents per day.

*Darien, Ga.*—The medical attendance to be furnished by an acting assistant surgeon; W. A. Wilcox to furnish quarters, subsistence, and nursing, at \$1.25 per day.

*Detroit, Mich.*—Hospital patients to be cared for in the U. S. marine hospital; out-patients to be treated at the dispensary, No. 90 Griswold street; John Dick to provide for the burial of deceased patients, at \$10 each.

*Dubuque, Iowa.*—The medical attendance to be furnished by an acting assistant surgeon; St. Joseph's Mercy Hospital to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; M. M. Hoffman to provide for the burial of deceased patients, at \$14 each.

*Duluth, Minn.*—The medical attendance to be furnished by an acting assistant surgeon; St. Luke's Hospital to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day; John W. Stewart to provide for the burial of deceased patients, at \$15 each.

*East Saginaw, Mich.*—The medical attendance to be furnished by an acting assistant surgeon; Saginaw Hospital to furnish quarters, subsistence, nursing, and medicines, at 72 cents per day. Patients requiring long-continued hospital treatment to be furnished transportation to the U. S. marine hospital at Detroit, Mich.

*Edenton, N. C.*—R. Dillard, M. D., to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$2 per day. Patients requiring long-continued hospital treatment will be furnished transportation to the U. S. marine hospital at Wilmington, N. C. For out-patients, \$1 will be allowed for each medical examination, and 25 cents additional for each time medicine is furnished.

*Elizabeth City, N. C.*—The medical attendance to be furnished by an acting assistant surgeon.

*Ellsworth, Me.*—The medical attendance to be furnished by an acting assistant surgeon. Hospital care and treatment will be furnished only to patients who are unable to bear transportation to the U. S. marine hospital at Portland, Me.

*Erie, Pa.*—The medical attendance to be furnished by an acting assistant surgeon; Hamot Hospital Association to furnish quarters, subsistence, and nursing, at 71 cents per day. Patients requiring long-continued hospital treatment will be furnished transportation to the U. S. marine hospital at Detroit, Mich.

*Escanaba, Mich.*—The medical attendance to be furnished by an acting assistant surgeon; Delta County Hospital to furnish quarters, subsistence, and nursing, at \$1 per day.

*Eureka, Cal.*—The medical attendance to be furnished by an acting assistant surgeon; Leander Anderson to furnish quarters, subsistence, nursing, and medicines, at \$1.25 per day; contagious diseases, at \$3 per day; and to provide for the burial of deceased patients, at \$20 each.

*Evansville, Ind.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; the Evansville City Hospital Association to furnish quarters, subsistence, nursing, and medicines, at \$1 per day until the removal of the patients to the U. S. marine hospital; Joseph Schaefer to provide for the burial of deceased patients, at \$22 each.

*Fairport Harbor, Ohio.*—The medical attendance to be furnished by an acting assistant surgeon. Patients requiring hospital care and treatment to be furnished transportation to the hospital at Cleveland, Ohio.

*Fernandina, Fla.*—The medical attendance to be furnished by an acting assistant surgeon; John H. Mills to furnish quarters, subsistence, and nursing, at \$1 per day; contagious diseases, at \$2 per day; and to provide for the burial of deceased patients, at \$15 each.

*Fredericksburg, Va.*—The medical attendance to be furnished by an acting assistant surgeon; Amelia Parrott to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; contagious diseases, at \$2 per day; George Nosset to provide for the burial of deceased patients, at \$12.50 each.

*Gallipolis, Ohio.*—The medical attendance to be furnished by an acting assistant surgeon; Mrs. Genevieve Maxon to furnish quarters, subsistence, and nursing,



at \$1.50 per day; G. J. Wetherholt to provide for the burial of deceased patients, at \$13.75 each.

*Galveston, Tex.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; St. Mary's Infirmary to furnish ambulance service, quarters, subsistence, nursing, and medicines, at \$1 per day; contagious diseases, at \$2 per day; and to provide for the burial of deceased patients, at \$7 each. Patients requiring long-continued hospital treatment will be furnished transportation to the U. S. marine hospital at New Orleans, at the discretion of the medical officer.

*Georgetown, D. C.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; out-patients to be treated at the dispensary, No. 3 B street, S. E., Washington; Providence Hospital, Washington, to furnish quarters, subsistence, nursing, and medicine, at 75 cents per day.

*Georgetown, S. C.*—The medical attendance to be furnished by an acting assistant surgeon; M. S. Mustard and Susan Dennison to furnish quarters, subsistence, and nursing, at \$1.50 per day; Joseph J. Dunmore to provide for the burial of deceased patients, at \$18 each.

*Gloucester, Mass.*—The medical attendance to be furnished by an acting assistant surgeon. Patients requiring hospital care and treatment to be furnished transportation to the U. S. marine hospital at Chelsea, Mass.

*The Government Hospital for the Insane, District of Columbia.*—Under act of Congress, March 3, 1875, to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$4.50 per week, for each insane patient admitted upon the order of the Secretary of the Treasury.

*Grand Haven, Mich.*—The medical attendance to be furnished by an acting assistant surgeon; Mary E. Pennoyer to furnish quarters, subsistence, and nursing, at \$1 per day.

*Green Bay, Wis.*—The medical attendance to be furnished by an acting assistant surgeon; St. Vincent's Hospital to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; contagious diseases, at \$3 per day; Lefebore & Schumacher to provide for the burial of deceased patients, at \$16 each.

*Hartford, Conn.*—The Hartford Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$1 per day; G. W. Woolley & Son to provide for the burial of deceased patients, at \$13 each.

*Jacksonville, Fla.*—The medical attendance to be furnished by an acting assistant surgeon; Phillis Lamar to furnish quarters, subsistence, and nursing, at 80 cents per day, and to provide for the burial of deceased patients, at \$9 each.

*Keokuk, Iowa.*—St. Joseph's Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at 90 cents per day.

*Key West, Fla.*—Hospital patients to be cared for in the U. S. marine hospital; Day & Allen to provide for the burial of deceased patients, at \$11.75 each.

*La Crosse, Wis.*—The medical attendance to be furnished by an acting assistant surgeon; St. Francis Hospital, M. Ludovica, superior, to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; contagious diseases, at \$2 per day; Walter Tillman to provide for the burial of deceased patients, at \$15 each.

*Lewes, Del.*—The medical attendance to be furnished by an acting assistant surgeon; Levin D. Lynch to furnish quarters, subsistence, nursing, and medicines, at \$1.10 per day; Jacob H. Conwell to provide for the burial of deceased patients, at \$10.25 each.

*Little Rock, Ark.*—The medical attendance to be furnished by an acting assistant surgeon; Little Rock Infirmary to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; F. Baer to provide for the burial of deceased patients, at \$8 each.

*Louisville, Ky.*—Hospital patients to be cared for in the U. S. marine hospital; out-patients to be treated at the dispensary, 915 Jefferson street; Wyatt & Cralle to provide for the burial of deceased patients, at \$17 each.

*Ludington, Mich.*—The medical attendance to be furnished by an acting assistant surgeon; Hannibal D. Linsley to furnish quarters, subsistence, and nursing, at \$1 per day.

*Machias, Me.*—The medical attendance to be furnished by an acting assistant surgeon; Abiel E. Preble to furnish quarters, subsistence, and nursing, at 86 cents per day; E. M. Bucknam to provide for the burial of deceased patients, at \$10 each.

*Manistee, Mich.*—The medical attendance to be furnished by an acting assistant surgeon; Mercy Hospital to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day.

*Marquette, Mich.*—The medical attendance to be furnished by an acting assist-



ant surgeon: contracts to furnish quarters, subsistence, and nursing, and to provide for burial of deceased patients, not yet completed.

*Marshfield, Oregon.*—The medical attendance to be furnished by an acting assistant surgeon; John Snyder to furnish quarters, subsistence, nursing, and medicines, at \$1.50 per day.

*Memphis, Tenn.*—Hospital patients to be cared for in the U. S. marine hospital; John Walsh to provide for the burial of deceased patients at \$9 each.

*Michigan City, Ind.*—The medical attendance to be furnished by an acting assistant surgeon.

*Milwaukee, Wis.*—The medical attendance to be furnished by an acting assistant surgeon; out-patients to be treated at No. 466 Milwaukee street; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines, at 80 cents per day; George L. Thomas to provide for the burial of deceased patients, at \$16 each. Chronic hospital patients to be furnished transportation to the U. S. marine hospital at Chicago, Ill.

*Mobile, Ala.*—Hospital patients to be cared for in the U. S. marine hospital; Peter F. Alba to provide for the burial of deceased patients, at \$12.50 each.

*Nashville, Tenn.*—The medical attendance to be furnished by an acting assistant surgeon; Nashville City Hospital to furnish quarters, subsistence, nursing, and medicines, at 90 cents per day.

*New Bedford, Mass.*—The medical attendance to be furnished by an acting assistant surgeon. Patients requiring hospital care and treatment, if able to bear transportation, will be sent to the U. S. marine hospital at Vineyard Haven.

*New Berne, N. C.*—The medical attendance to be furnished by an acting assistant surgeon. Patients requiring long-continued hospital treatment will be furnished transportation to the U. S. marine hospital at Wilmington, N. C. For other hospital patients, the Convent of Mercy to furnish quarters, subsistence, and nursing, at 90 cents per day; William F. James to provide for the burial of deceased patients, at \$12.50 each.

*New Haven, Conn.*—The medical attendance to be furnished by an acting assistant surgeon: the New Haven General Hospital to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; contagious diseases, at \$3 per day; and to provide for the burial of deceased patients, at \$15 each.

*New London, Conn.*—The medical attendance to be furnished by an acting assistant surgeon. Hospital care and treatment to be furnished, at a rate not exceeding 85 cents per day, only to patients who are unable to bear transportation to the marine hospital at Stapleton, Staten Island, N. Y.

*New Orleans, La.*—Hospital patients to be cared for in the U. S. marine hospital; T. J. McMahon & Sons to provide for the burial of deceased patients, at \$8 each.

*Newport, Ark.*—The medical attendance to be furnished by an acting assistant surgeon; Puss Watkins to furnish quarters, subsistence, and nursing, at \$1.25 per day.

*Newport, R. I.*—The medical attendance to be furnished by an acting assistant surgeon; the Newport hospital to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; Michael Cottrell to provide for the burial of deceased patients, at \$11.50 each. Patients requiring long-continued hospital treatment will be furnished transportation to the marine hospital, Stapleton, Staten Island, N. Y.

*New York, N. Y.*—Hospital patients to be cared for in the marine hospital, Stapleton, Staten Island, New York; out-patients to be treated at the dispensary, near the "new barge office, Battery;" G. F. Schaefer, of Staten Island, to provide for the burial of deceased patients, at \$8 each.

*Norfolk, Va.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; Sister Isadore Kenney to furnish quarters, subsistence, nursing, ambulance service, and medicines, at 80 cents per day; J. E. Edwards to provide for the burial of deceased patients, at \$10 each.

*Ogdensburg, N. Y.*—The City Hospital to furnish quarters, subsistence, and nursing, at \$1 per day; and to provide for the burial of deceased patients, at \$15 each.

*Oswego, N. Y.*—The medical attendance to be furnished by an acting assistant surgeon; the Oswego Hospital to furnish quarters, subsistence, nursing, and medicine, at \$1.25 per day.

*Pensacola, Fla.*—The medical attendance to be furnished by an acting assistant surgeon; R. W. Hargis to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; and S. B. Hutchinson & Co. to provide for the burial of deceased patients, at \$15 each. Patients requiring long-continued hospital treatment will be furnished transportation to the U. S. marine hospital at Mobile, Ala.



*Philadelphia, Pa.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; German Hospital to furnish quarters, subsistence, nursing, medicines, and a resident physician, at 75 cents per day, and to provide for the burial of deceased patients, at \$15 each. Transportation from the marine hospital office to the hospital to be furnished by the hospital authorities when required.

*Pittsburgh, Pa.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; out-patients to be treated at No. 96 Wood street; the Mercy Hospital to furnish quarters, subsistence, nursing, and medicines, at 94 cents per day; J. J. Giltinan to provide for the burial of deceased patients, at \$13 each. Care and treatment of contagious cases to be furnished by the Pittsburgh board of health, at \$2 per day.

*Plymouth, Mass.*—The medical attendance to be furnished by an acting assistant surgeon.

*Port Huron, Mich.*—The medical attendance to be furnished by an acting assistant surgeon; "Hospital and Home" to furnish quarters, subsistence, nursing, and medicines, at \$1 per day. Patients requiring long-continued hospital treatment will be furnished transportation to the U. S. marine hospital at Detroit; George Thompson to provide for the burial of deceased patients, at \$7.50 each.

*Portland, Me.*—Hospital patients to be cared for in the U. S. marine hospital; Ilsley Bros. to provide for the burial of deceased patients, at \$6.50 each.

*Portland, Oregon.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; out-patients to be treated at the dispensary, room 21, "Union Block," corner of First and Stark streets; Portland Hospital to furnish quarters, subsistence, nursing, and medicines, at 65 cents per day; contagious diseases, at 65 cents per day; De Lin & Holman to provide for the burial of deceased patients, at \$10.50 each.

*Portsmouth, N. H.*—The medical attendance to be furnished by an acting assistant surgeon; Cottage Hospital to furnish quarters, subsistence, and nursing, at \$1 per day.

*Port Townsend, Wash.*—Hospital patients to be cared for in the U. S. marine hospital; Alfred G. Swendsen to provide for the burial of deceased patients, at \$12.50 each.

*Providence, R. I.*—The Rhode Island Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$1 per day, and to provide for the burial of deceased patients, at \$12 each. Patients requiring long-continued hospital treatment will be furnished transportation to the U. S. marine hospital at Chelsea (port of Boston).

*Richmond, Va.*—The medical attendance to be furnished by an acting assistant surgeon; out-patients to be treated at the marine hospital office, custom-house building; "Retreat for the Sick" Hospital to furnish quarters, subsistence, nursing, and medicines, at \$1 per day.

*Rockland, Me.*—The medical attendance to be furnished by an acting assistant surgeon; John S. Ranlett to furnish quarters, subsistence, and nursing, at \$1 per day. Patients requiring long-continued hospital treatment to be furnished transportation to the U. S. marine hospital at Portland, Me.

*Rome, Ga.*—The medical attendance to be furnished by an acting assistant surgeon; Mrs. Lou Echols to furnish quarters, subsistence, and nursing, at \$1 per day.

*St. Louis, Mo.*—Hospital patients to be cared for in the U. S. marine hospital; Jacob Michel to provide for the burial of deceased patients, at \$10.50 each.

*St. Paul, Minn.*—The medical attendance to be furnished by an acting assistant surgeon; St. Joseph's Hospital to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; contagious diseases, at \$2 per day; and to provide for the burial of deceased patients, at \$15 each.

*San Diego, Cal.*—Dr. W. A. Winder to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$1.55 per day; contagious diseases, at \$3 per day; and to provide for the burial of deceased patients, at \$15 each.

*Sandusky, Ohio.*—The medical attendance to be furnished by an acting assistant surgeon; the Good Samaritan Hospital to furnish quarters, subsistence, and nursing, at \$1 per day.

*San Francisco, Cal.*—Hospital patients to be cared for in the U. S. marine hospital; out-patients to be treated at the marine hospital office, rooms 1-3, appraisers' building; burial of deceased patients at the hospital cemetery; burial of foreign seamen, at \$10 each.

*Sault St. Marie, Mich.*—The medical attendance to be furnished by an acting assistant surgeon; Mrs. Annie McNeeley to furnish quarters, subsistence, and



nursing, at \$1 per day; Harry Blake to provide for the burial of deceased patients, at \$12 each.

*Savannah, Ga.*—The medical attendance to be furnished by a medical officer of the Marine Hospital Service; St. Joseph's Infirmary to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; Joseph Goette to provide for the burial of deceased patients, at \$8 each. Patients requiring long-continued hospital treatment will be furnished transportation to the U. S. marine hospital at Wilmington, N. C.

*Seattle, Wash.*—The medical attendance to be furnished by an acting assistant surgeon; Grace Hospital to furnish quarters, subsistence, nursing, and medicines, at 85 cents per day; Cross & Co. to provide for the burial of deceased patients, at \$20.50 each.

*Shreveport, La.*—The medical attendance to be furnished by an acting assistant surgeon; out-patients to be treated at the marine hospital office; Shreveport Charity Hospital to furnish, quarters, subsistence, nursing, and medicines, at \$1 per day; J. S. Rendall to provide for the burial of deceased patients, at \$13.50 each.

*Sitka, Alaska.*—The medical attendance to be furnished by an acting assistant surgeon.

*Solomons, Md.*—The medical attendance to be furnished by an acting assistant surgeon; J. P. Harten to furnish subsistence, nursing, fuel, and lights, at \$1 per day.

*Tacoma, Wash.*—The medical attendance to be furnished by an acting assistant surgeon; Fannie Paddock Hospital to furnish quarters, subsistence, nursing, and medicines, at \$1 per day.

*Tappahannock, Va.*—Dr. W. J. Jeffries to furnish quarters, subsistence, nursing, medical attendance, and medicines, at Tappahannock; Dr. W. J. Newbill, at Carter Creek, and Dr. W. S. Christian at Urbana, each at \$1.50 per day.

*Toledo, Ohio.*—The medical attendance to be furnished by an acting assistant surgeon; St. Vincent Hospital to furnish quarters, subsistence, nursing, and medicines, at 80 cents per day; contagious diseases, \$2 per day; and to provide for the burial of deceased patients, at \$15 each.

*Tuckerton, N. J.*—The medical attendance to be furnished by an acting assistant surgeon.

*Vicksburg, Miss.*—The medical attendance to be furnished by an acting assistant surgeon; the Vicksburg City Hospital to furnish quarters, subsistence, nursing, and medicines, at \$1 per day; contagious diseases, at \$3 per day.

*Vineyard Haven, Mass.*—Hospital patients to be cared for in the U. S. marine hospital; M. C. Vincent to provide for the burial of deceased patients, at \$17 each.

*Wheeling, W. Va.*—The medical attendance to be furnished by an acting assistant surgeon; the Wheeling Hospital to furnish quarters, subsistence, nursing, and medicines, at \$1 per day.

*Wilmington, Cal.*—Randolph W. Hill, M. D., to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$1.10 per day; contagious diseases, at \$2 per day; and to provide for the burial of deceased patients, at \$10 each.

*Wilmington, Del.*—Willard Springer, M. D., to furnish quarters, subsistence, nursing, medical attendance, and medicines, at \$1 per day; contagious diseases, at \$2 per day; and to provide for the burial of deceased patients, at \$10 each.

*Wilmington, N. C.*—Hospital patients to be cared for in the U. S. marine hospital; David C. Evans to provide for the burial of deceased patients, at \$13 each.

At the following-named ports hospital or other relief will be furnished only under the provisions of the Regulations for the Marine Hospital Service as to third-class stations: Barnstable, Mass.; Beaufort, N. C.; Beaufort, S. C.; Castine, Me.; Chatham, Mass.; Dennis, Mass.; Eastport, Me.; Edgartown, Mass.; Hyannis, Mass.; Newport News, Va.; Provincetown, Mass.; Sag Harbor N. Y.; Salem, Mass.; Somers Point, N. J.; Tampa, Fla.; Waldboro, Me.; Wiscasset, Me.

The rate at ports not specifically provided for by this circular will, in each special case, be fixed by the Department, upon the recommendation of the proper officer, in accordance with the regulations approved 1889.

The rate of charge for seamen from vessels of the Navy and Coast Survey, admitted to hospital under the provisions of the regulations, and for foreign seamen admitted under the act of March 3, 1875, is hereby fixed at the uniform rate of \$1 per diem at the ports where there are marine hospitals, and at contract rates at other ports.

At all ports not otherwise specified the dispensary is located at the custom-house or marine hospital.





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